UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,412	04/11/2017	9621522	D1-02359A.CON2	5115

71897 7590 03/22/2017

KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Michael George Kiefer, Lake Havasu City, AZ;
Sonic IP, Inc., San Diego, CA;
Eric William Grab, San Diego, CA;
Jason Braness, San Diego, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20140359679	A1	2014-12-04	Shivadas et al.	
		20140359680	A1	2014-12-04	Shivadas et al.	
		2014355668	A1	2014-12-04	Shoham, Tamar et al.	
		20140376720	A1	2014-12-25	Chan, Francis Y., et al.	
		20150006662	A1	2015-01-01	Braness, Jason A.	
		20150026677	A1	2015-01-22	Stevens, Jerry et al.	
		2015049957	A1	2015-02-19	Shoham, Tamar et al.	
		20150063693	A1	2015-03-05	Carmel et al.	
		20150104153	A1	2015-04-16	Braness, Jason et al.	
		20150117836	A1	2015-04-30	Amidei, William et al.	
		20150117837	A1	2015-04-30	Amidei, William et al.	
		20150139419	A1	2015-05-21	Kiefer, Michael et al.	
		20150188758	A1	2015-07-02	Amidei, William et al.	
		20150188842	A1	2015-07-02	Amidei, William et al.	
		20150188921	A1	2015-07-02	Amidei, William et al.	
		20150189017	A1	2015-07-02	Amidei, William et al.	
		20150189373	A1	2015-07-02	Amidei, William et al.	
		20150334435	A1	2015-11-19	Shivadas et al.	
		20150373421	A1	2015-12-24	Chan, Francis Y.	
		20160070890	A1	2016-03-10	Grab et al., Eric W.	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Page, Column, Lines where Relevant Passages or Relevant Figures Appear	T[5]
Change(s) applied to document, /N.B.H./ 12/16/2016		2002013664	KR		02/2002	Kim et al.		
		1995015660	WO	A1	1995-06-08	Birch et al.		
		08046902	JP	A	1996-02-16	Uchiumi et al.		
		8111842	JP	A	1996-04-30	Gaiguchi et al.		
		1996013121	WO		1996-05-02	McLaren, D.		
		1996163488	JP		1996-06-21	Hiroshi et al.		
		1996287613	JP	A	1996-11-01	Katayama		

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		5745643		1998-04-28	Mishina, M.	
		5751280		1998-05-12	Abbott, Michael J.	
		5754648	A	1998-05-19	Ryan et al., John	
		5763800		1998-06-09	Rossum, David P., et al.	
		5765164		1998-06-09	Prasad, Rama R., et al.	
		5794018		1998-08-11	Vrvilo, Benjamin et al.	
		5805700	A	1998-09-08	Nardone, Joseph et al.	
		5822524		1998-10-13	Chen et al., Huey-Shiang	
		5828370		1998-10-27	Moeller et al.	
		5841432	A	1998-11-24	Carmel, Sharon et al.	
		5844575	A	1998-12-01	Reid, J. L.	
		5848217		1998-12-08	Tsukagoshi, I et al.	
		5867625	A	1999-02-02	McLaren, David	
		5887110	A	1999-03-23	Sakamoto, Hideki et al.	
		5892900	A	1999-04-06	Ginter et al., Karl	
		5903261		1999-05-11	Walsh, Bruce E., et al.	
		5907597		1999-05-25	Mark	
		5946446		1999-08-31	Yanagihara, Naofumi	
		5956729		1999-09-21	Goetz et al.	
		5959690		1999-09-28	Toebes VIII, John A., et al.	
		5999812	A	1999-12-07	Himsworth, Winston E.	
		6031622	A	2000-02-29	Ristow, Allan et al.	
		6038257	A	2000-03-14	Brusewitz, Harald et al.	
		6044469	A	2000-03-28	Horstmann, Cay S.	
		6046778	A	2000-04-04	Nonomura;, Tomoyuki et al.	
		6047100		2000-04-04	McLaren, David L.	
		6058240		2000-05-02	McLaren, David L.	
		6064794	A	2000-05-16	McLaren, David et al.	
		6065050		2000-05-16	DeMoney	
		6018611		~~2000-06-25~~	Nogami et al. 01/2000	
		6079566		2000-06-27	Eleftheriadis et al.	
		6097877	A	2000-08-01	Katayama, Hironobu et al.	
		6141754	A	2000-10-31	Choy, David	
		6155840	A	2000-12-05	Sallette, Alfred V.	
		6169242		2001-01-02	Fay, Tudor C., et al.	
		6175921	B1	2001-01-16	Rosen, Sholom	

Change(s) ~~applied~~ to document, /C.C.B./ 12/19/2016

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF TRANSMISSION

I hereby certify that the enclosed Fee(s) Transmittal is being electronically filed with the United States Patent and Trademark Office on March 2, 2017 at or before 11:59 p.m. Pacific Time under the Rules of 37 CFR § 1.8.

/Melissa Yee/
Melissa Yee

PART B – FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), to: Mail

Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22314-1450

or Fax **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note Use Block 1 for any change of address)

71897 7590 12/02/2016

KPPB LLP
2400 E. Katella Ave., Suite 1050
Anaheim, CA 92806

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's Name)
(S-signature)
(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
14/970,412	12/15/2015	Michael George Kiefer	D1-02359A.CON2	5115

TITLE OF INVENTION:

Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	Undiscounted	$960	$0	$0	$960	03/02/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
Abiy Getachew	2434	713-160000

1. Change of correspondence address or indication of "Fee Address" (37CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered attorney or agent. If no name is listed, no name will be printed

1. KPPB LLP
2.
3.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

1a. NAME OF ASSIGNEE: Sonic IP, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): San Diego, CA

Please check the appropriate assignee categories (will not be printed on the patent): ☐ Individual ☑ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☑ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies

4b. Payment of Fees(s): **(Please first reapply and previously paid fee shown above)**
☐ A check is enclosed
☐ Payment be credit card. Form PTO-2038 is attached
☑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 50-4407 (enclose an extra copy of this form)

5. Change of Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

☐ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Paul J. Lee/ Date March 2, 2017

Typed or printed name Paul J. Lee Registration No. 69,375

DivX Exhibit 2005
Page 2009 - 5
IPR2020-00558

Electronic Patent Application Fee Transmittal

Application Number:	14970412
Filing Date:	15-Dec-2015
Title of Invention:	SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION
First Named Inventor/Applicant Name:	Michael George Kiefer
Filer:	Paul Joon Lee/Melissa Yee
Attorney Docket Number:	D1-02359A.CON2

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**960**

Electronic Acknowledgement Receipt

EFS ID:	28520914
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Paul Joon Lee/Melissa Yee
Filer Authorized By:	Paul Joon Lee
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	02-MAR-2017
Filing Date:	15-DEC-2015
Time Stamp:	19:07:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$960
RAM confirmation Number	030317INTEFSW19083300
Deposit Account	504407
Authorized User	Melissa Yee

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	02359ACON2issuefee.pdf	191006 6f640da63bb447c9efa48a87ed598a028aad52a3	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30670 df6b941f65804e37bec501dd65ed3f290012ae2f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	221676		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF EFS WEB TRANSMISSION

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on February 8, 2017 at or before 11:59 p.m. Pacific Time under the Rules of 37 C.F.R. 1.8.

/Melissa Yee/
Melissa Yee

Appl No.	: 14/970,412	Confirmation No. 5115
Applicant	: Sonic IP, Inc.	
Filed	: September 15, 2015	
Title	: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	
TC/A.U.	: 2434	
Examiner	: Abiy Getachew	
Docket No.	: D1-02359A.CON2	
Customer No.	: 71897	

INVENTOR'S OATH OR DECLARATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2400 E. Katella, Suite 1050
Anaheim, CA 92806
February 8, 2017

Commissioner:

Applicant respectfully notes that declarations for inventors Michael George Kiefer, Eric William Grab, and Jason Braness were filed December 15, 2015 with EFS ID 24372759. A copy of the previously filed declarations is attached. Furthermore, Applicant respectfully notes that the instant application claims priority in accordance with 35 U.S.C. § 120 to applications including U.S. Patent Application No. 14/564,003, filed December 8, 2014. Declarations in accordance with 35 U.S.C. § 115(a) were filed on December 15, 2015 in U.S. Patent Application No. 14/564,003. In accordance with 35 U.S.C. § 115(g)(1)(A), Applicant respectfully submits that Applicant need not file Inventor's Oath or Declarations in the instant application in accordance with 35 U.S.C. § 115(a) as declarations meeting the requirements of U.S.C. § 115(a) were executed by the inventors and filed in connection with the earlier-filed application.

For reasons including those stated above, Applicant respectfully submits that the Notice Requiring Inventor's Oath or Declaration is improper and the instant application should proceed to issuance. The Commissioner is authorized to charge any fee under 37 CFR 1.16 and 1.17 that may be required during the **entire pendency** of the application to Deposit Account No. 50-4407. Please show our docket number with any transaction to the Deposit Account.

Respectfully submitted,
KPPB LLP

By /Paul J. Lee/
Paul J. Lee
Registration No. 69,375
949.852.0000

PJL/my

Electronic Acknowledgement Receipt

EFS ID:	24372759
Application Number:	14564003
International Application Number:	
Confirmation Number:	5114
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Jason Daniel Wolfe/Katrina Lee
Filer Authorized By:	Jason Daniel Wolfe
Attorney Docket Number:	D1-02359A.CON
Receipt Date:	15-DEC-2015
Filing Date:	08-DEC-2014
Time Stamp:	20:19:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$960
RAM confirmation Number	7427
Deposit Account	504407
Authorized User	BAILEY, DAVID

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	02359acondecxtml.pdf	100404 4f6f859a221b9303ecfdb1ee42f865bdd4611f6f	no	1
Warnings:					
Information:					
2	Oath or Declaration filed	02359acondeclaration.pdf	1020176 8e7ed744db349ef862d3e3a2b36032be3d52e5fb	no	3
Warnings:					
Information:					
3	Issue Fee Payment (PTO-85B)	02359aconissuefeextml.pdf	1872415 fc1cb379807a78874d6da5004c197275216100510	no	3
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30903 53f9a1770be99dbc00ab0ed68400fec6d28a61b6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	3023898		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on December 15, 2015 at or before 11:59 p.m. Pacific Time under the Rules of 37 C.F.R. 1.8.

/Katrina Lee/
Katrina Lee

Appl No.	: 14/564,003	Confirmation No. 5114
Applicant	: Sonic IP, Inc.	
Filed	: December 8, 2014	
Title	: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	
TC/A.U.	: 2434	
Examiner	: Abiy Getachew	
Docket No.	: D1-02359A.CON	
Customer No.	: 71897	

TRANSMITTAL OF INVENTOR DECLARATIONS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2400 E. Katella, Suite 1050
Anaheim, CA 92806
December 15, 2015

Commissioner:

Enclosed are the signed Declarations of the inventors listed in this case.

The Commissioner is authorized to charge any fee under 37 CFR 1.16 and 1.17 which may be required during the **entire pendency** of the application to Deposit Account No. 50-4407. Please show our docket number with any transaction to the Deposit Account.

Respectfully submitted,

KPPB LLP

By /Jason D. Wolfe/
Jason D. Wolfe
Registration No. 71,327
949.852.0000

JDW/kl

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION

As the below named inventor, I hereby declare that:

This declaration is directed to:

- ☐ The attached application, or
- ☑ United States application or PCT international application number 14/564,003 filed on December 8, 2014

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

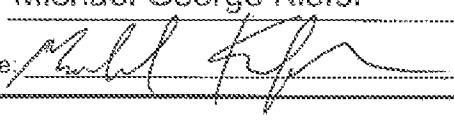
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Michael George Kiefer Date (Optional): 12/14/2015

Signature: 

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION

As the below named inventor, I hereby declare that:

This declaration is directed to:

- ☐ The attached application, or
- ☑ United States application or PCT international application number 14/564,003 filed on December 8, 2014

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Eric William Grab Date (Optional): _____

Signature: _____

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☑ United States application or PCT international application number 14/564,003 filed on December 8, 2014.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Jason Braness Date (Optional): _____

Signature: _____

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	28305238
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Paul Joon Lee/Melissa Yee
Filer Authorized By:	Paul Joon Lee
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	08-FEB-2017
Filing Date:	15-DEC-2015
Time Stamp:	18:55:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	02359ACON2decs.pdf	1254287 6050988a8108a2aaadb466a810217a7074126371	no	8

Warnings:

Information:	
Total Files Size (in bytes):	1254287

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

71897 7590 12/02/2016

KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

EXAMINER
GETACHEW, ABIY

ART UNIT	PAPER NUMBER
2434	

DATE MAILED: 12/02/2016

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,412	12/15/2015	Michael George Kiefer	D1-02359A.CON2	5115

TITLE OF INVENTION: SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	03/02/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

71897 7590 12/02/2016
KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,412	12/15/2015	Michael George Kiefer	D1-02359A.CON2	5115

TITLE OF INVENTION: SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	03/02/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
GETACHEW, ABIY	2434	713-160000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

DivX Exhibit 2005
Page 2005 - 21
IPR2020-00538

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,412	12/15/2015	Michael George Kiefer	D1-02359A.CON2	5115

71897 7590 12/02/2016

KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

EXAMINER	
GETACHEW, ABIY	
ART UNIT	PAPER NUMBER
2434	

DATE MAILED: 12/02/2016

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice Requiring Inventor's Oath or Declaration	Application No. 14/970,412	Applicant(s) Michael George Kiefer	
	Examiner GETACHEW, ABIY	Art Unit 2434	

This notice is an attachment to the Notice of Allowability (PTOL-37), or the Notice of Allowability For A Design Application (PTOL-37D).

An inventor's oath or declaration in compliance with 37 CFR 1.63 or 1.64 executed by or with respect to each inventor has not yet been submitted.

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor (for any inventor for which a compliant oath, declaration, or substitute statement has not yet been submitted) MUST be filed no later than the date on which the issue fee is paid. See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application.

A properly executed inventor's oath to declaration has not been received for the following inventor(s):

If applicant previously filed one or more oaths, declarations, or substitute statements, applicant may have received an informational notice regarding deficiencies therein.

The following deficiencies are noted:

INFORMAL ACTION PROBLEMS

- A properly executed inventor's oath or declaration has not been received for the following inventor(s): **Michael George Kiefer**, **Eric William Grab**, and **Jason Braness**.
  Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/970,412	Applicant(s) KIEFER ET AL.	
	Examiner ABIY GETACHEW	Art Unit 2434	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *10/28/2016*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-15*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date See Continuation Sheet
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date *11/22/2016* .
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☒ Other *Examiner Statement*.

/ABIY GETACHEW/ Examiner, Art Unit 2434	/KAMBIZ ZAND/ Supervisory Patent Examiner, Art Unit 2434

Continuation of Attachment(s) 2. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 11/14/2016 and 11/15/2016.

DivX Exhibit 2005
Page 2005 - 26
IPR2020-00558

DETAILED ACTION

Remarks

1. Claims 1-15 are pending. Claims 1 and 15 are independent form.

2. Applicant provided clarification concerning the statement made at Applicant Argument/Remark section filed on 10/28/2016, specifically statement made on page 9 line 4, i.e., Applicant itemized claim 7 is cancelled. However, on telephone interview with the Applicant, made on 11/22/2016, Applicant informed Examiner Getachew that the statement made at the Applicant remark section, filed on 10/28/2016, on Page 9 lines 4 "Claim 7 is canceled" is a **misprint**.

3. Claims 1-15 are pending claims. New claim 15 has been added. Claims 1-6 and are amended. The new claim 15, recites no new matter and is supported in the specification and claims as originally filed. *Specific support can be found in paragraphs [0066] to [0072] and in Figure 1D with associated paragraph [0081].*

Allowable Subject Matter

4. Claims 1-15 are allowed.

Response to Arguments

5. Applicant's arguments, filed 10/28/2016 have been fully considered and are persuasive.

6. The double patenting rejection of 07/28/2016 has been withdrawn.

7. Claims 1-14 have been interpreted under 35 U.S.C. § 112(f) or pre-AIA 35 U.S.C. § 112, sixth paragraph to invoke means for or step plus functional claim language; Thus, the claim limitation will no longer be interpreted as a limitation under 35 U.S.C. 112, sixth paragraph set forth in the previous office action is **withdrawn**.

Information Disclosure Statement

8. The information disclosure statement (IDS) submitted on 11/15/2016 and 11/14/2016, the submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Terminal Disclaimer

9. The terminal disclaimer filed on 10/28/2016 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent No. 8,909,922 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

10. Claims 1-15 are allowed. No reason for allowance is needed as the record is clear in light of applicant's arguments and specification.

11. According to MPEP 1302.14 (I): "In most cases, the examiner's actions and the applicant's replies make evident the reasons for allowance, satisfying the "record as a whole" proviso of the rule. This is particularly true when applicant fully complies with 37 CFR 1.111 (b) and (c) and 37 CFR 1.133(b). Thus, where the examiner's actions clearly point out the reasons for rejection and the applicant's reply explicitly presents reasons why claims are patentable over the reference, the reasons for allowance are in all probability evident from the record and no statement should be necessary."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABIY GETACHEW whose telephone number is (571)272-6932. The examiner can normally be reached on Monday to Friday 8Am to 4:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Zand can be reached on (571)272-3811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ABIY GETACHEW/
Examiner, Art Unit 2434

A.G.
November 27, 2016
/KAMBIZ ZAND/

Supervisory Patent Examiner, Art Unit 2434

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	14/970,412	KIEFER ET AL.	
	Examiner	Art Unit	
	ABIY GETACHEW	2434	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ABIY GETACHEW*.

(3) *Attorney Jason D. Wolfe (Reg. No. 71,327)* .

(2) _____.

(4)_____.

Date of Interview: *22 November 2016*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *Claim 7*.

Identification of prior art discussed: *N/A.*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

*Examiner Getachew has contacted Attorney Jason D. Wolfe (Reg. No. 71,327), Examiner Getachew requested Applicant for a clarification concerning Applicant Argument/Remark filed on 10/28/2016, specifically, and statement made on page 9 line 4, i.e., Applicant itemized claim 7 is cancelled. However, on telephone interview with the Applicant, made on 11/22/2016, Applicant informed Examiner Getachew that the statement made at the Applicant remark section, filed on 10/28/2016, on Page 9 lines 4 "Claim 7 is canceled" is a misprint.*_____.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☒ Attachment

/ABIY GETACHEW/ Examiner, Art Unit 2434	

CPC Classification - Application Number: 14970412

Examiner: Abiy Getachew **Date Created:** Nov 27, 2016 18:55

Family ID: 47754059

US App. No. (4) & Documents (7): 14/970412 (20160112382 A1), 14/564003 (20150139419 A1, 9247311 B2), 13/341265 (20130061040 A1, 8918636 B2), 13/340623 (20130061045 A1, 8909922 B2)

Foreign Documents (2): WO2013032518A3, WO2013032518A2

Allocations (10)

No.	CPC	Type			Endorsed By	CPC Version	IPC
1	H04L 63/0428	F			US	2013-01-01	H04L29/06
2	H04N 21/6334	I			US	2013-01-01	H04N21/6334
3	H04N 21/2347	I			US	2013-01-01	H04N21/2347
4	H04N 21/2541	I			US	2013-01-01	H04N21/254
5	H04N 21/4408	I			US	2013-01-01	H04N21/4408
6	H04N 21/4627	I			US	2013-01-01	H04N21/4627
7	H04L 9/32	I			US	2013-01-01	H04L9/32
8	H04N 21/64715	I			US	2013-01-01	H04N21/647
9	H04L 9/0819	I			US, EP	2013-01-01	H04L9/08
10	H04L2209/603	A			EP, US	2013-01-01	CPCONLY

Combination Sets (0)

No.	CPC	Type	Set	Rank	Endorsed By	CPC Version	IPC

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T 5
		ANONYMOUS, "Method for the encoding of a compressed video sequence derived from the same video sequence compressed at a different bit rate without loss of data", ip.com, ip.com number: IPCOM000008165D, May 22, 2002, pp. 1-9.	
		AUTHOR UNKNOWN, "Blu-ray Disc - Blu-ray Disc - Wikipedia, the free encyclopedia", printed October 30, 2008 from http://en.wikipedia.org/wiki/Blu-ray_Disc, 11 pgs.	
		AUTHOR UNKNOWN, "Blu-ray Movie Bitrates Here - Blu-ray Forum", printed October 30, 2008 from http://forum.blu-ray.com/showthread.php?t=3338, 6 pgs.	
		AUTHOR UNKNOWN, "MPEG-4 Video Encoder: Based on International Standard ISO/IEC 14496-2", Patni Computer Systems, Ltd., Publication date unknown, 15 pgs.	
		AUTHOR UNKNOWN, "O'Reilly - 802.11 Wireless Networks: The Definitive Guide, Second Edition", printed October 30, 2008 from http://oreilly.com/catalog/9780596100520, 2 pgs.	
		AUTHOR UNKNOWN, "Tunneling QuickTime RTSP and RTP over HTTP", Published by Apple Computer, Inc.: 1999 (month unknown), 6 pages	
		AUTHOR UNKNOWN, "Turbo-Charge Your Internet and PC Performance", printed October 30, 2008 from Speedtest.net - The Global Broadband Speed Test, 1 pg.	
		AUTHOR UNKNOWN, "When is 54 Not Equal to 54? A Look at 802.11a, b and g Throughput", printed October 30, 2008 from www.oreillynet.com/pub/a/wireless/2003/08/08/wireless_throughput.html, 4 pgs.	
		AUTHOR UNKNOWN, "White paper, The New Mainstream Wirless LAN Standard", Broadcom Corporation, July 2003, 12 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		BLASIAK, PH.D. "Video Transrating and Transcoding: Overview of Video Transrating and Transcoding Technologies," Ingenient Technologies, TI Developer Conference, August 6-8, 2002, 22 pgs.	
		CASARES ET AL., "Simplifying Video Editing Using Metadata", DIS2002, pp.157-166.	
		CN200880127596.4, "Fourth Office Action", 05/06/2014, 8	
		DEUTSCHER, "IIS Transform Manager Beta - Using the MP4 to Smooth Task", Retrieved from: https://web.archive.org/web/20130328111303/http://blog.johndeutscher.com/category/smooth-streaming, Blog post of April 17, 2010, 14 pgs.	
		GANNES, "The Lowdown on Apple's HTTP Adaptive Bitrate Streaming", GigaOM, June 10, 2009, 12 pgs.	
		GARG ET AL., "An Experimental Study of Throughput for UDP and VoIP Traffic in IEEE 802.11b Networks", Wireless Communications and Networkings, March 2003, pp. 1748-1753	
		GHOSH, "Enhancing Silverlight Video Experiences with Contextual Data", Retrieved from: http://msdn.microsoft.com/en-us/magazine/ee336025.aspx, 15 pgs.	
		INLET TECHNOLOGIES, "Adaptive Delivery to iDevices", 2 pages.	
		INLET TECHNOLOGIES, "Adaptive delivery to iPhone 3.0", 2 pgs.	
		INLET TECHNOLOGIES, "HTTP versus RTMP", 3 pages.	
		INLET TECHNOLOGIES, "The World's First Live Smooth Streaming Event: The French Open", 2 pages.	
		KASPAR ET AL., "Using HTTP Pipelining to Improve Progressive Download over Multiple Heterogeneous Interfaces", IEEE ICC proceedings, 2010, 5 pgs.	
		KIM, "MPEG-2 ES/PES/TS/PSI", Kyung-Hee University, October 4, 2010, 66 pages	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		KOZINTSEV ET AL., "Improving last-hop multicast streaming video over 802.11", Workshop on Broadband Wireless Multimedia, October 2004, pp. 1-10	
		KURZKE ET AL., "Get Your Content Onto Google TV", Google, Retrieved from: http://commondatastorage.googleapis.com/io2012/presentations/live%20to%20website/1300.pdf, 58 pgs.	
		LANG, "Expression Encoder, Best Practices for live smooth streaming broadcasting", Microsoft Corporation, 20 pgs.	
		LEVKOV, "Mobile Encoding Guidelines for Android Powered Devices", Adobe Systems Inc., Addendum B, source and date unknown, 42 pgs.	
		LONG ET AL., "Silver: Simplifying Video Editing with Metadata", Demonstrations, CHI 2003: New Horizons, pp. 628-629.	
		MSDN, "Adaptive streaming, Expression Studio 2.0", 2 pgs.	
		NELSON, "Smooth Streaming Deployment Guide", Microsoft Expression Encoder, August 2010, 66 pgs.	
		NELSON, "Arithmetic Coding + Statistical Modeling = Data Compression: Part 1 - Arithmetic Coding", Doctor Dobb's Journal, February 1991, printed from http://www.dogma.net/markn/articles/arith/part1.htm; printed July 2, 2003, 12 pgs.	
		NELSON, "IBM's Cryptolopes", Complex Objects in Digital Libraries Course, Spring 2001, Retrieved from http://www.cs.odu.edu/~mln/teaching/unc/inls210/?method=display&pkg_name=cryptolopes.pkg&element_name=cryptolopes.ppt, 12 pages.	
		NOBORU, "Play Fast and Fine Video on Web! codec", Co.9 No.12, 12/01/2003, 178-179	
		NOE, "Matroska File Format (under construction!)", Retrieved from the Internet: URL:http://web.archive.org web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19], 6/24/2007, 1-51	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		NOE, "AVI File Format", http://www.alexander-noe.com/video/documentation/avi.pdf, pp. 1-26.	
		NOE, "Definitions", http://www.alexander-noe.com/video/amg/definitions.html, April 11, 2006	
		OOYALA, "Widevine Content Protection", Ooyala Support Center for Developers. Ooyala, Inc., 2013. June 3, 2013. http://support.ooyala.com/developers/documentation/concepts/player_v3_widevine_integration.html	
		OZER, "The 2012 Encoding and Transcoding Buyers' Guide", Streamingmedia.com, Retrieved from: http://www.streamingmedia.com/Articles/Editorial/Featured-Articles/The-2012-Encoding-and-Transcoding-Buyers-Guide-84210.aspx, 2012, 8 pgs.	
		PANTOS, "HTTP Live Streaming, draft-pantos-http-live-streaming-10", IETF Tools, October 15, 2012, Retrieved from: http://tools.ietf.org/html/draft-pantos-http-live-streaming-10, 37 pgs.	
		PANTOS, "HTTP Live Streaming: draft-pantos-http-live-streaming-06", Published by the Internet Engineering Task Force (IETF), March 31, 2011, 24 pages	
		PAPAGIANNAKI ET AL., "Experimental Characterization of Home Wireless Networks and Design Implications", INFOCOM 2006, 25th IEEE International Conference of Computer Communications, Proceedings, April 2006, 13 pgs.	
		PHAMDO, "Theory of Data Compression", printed from http://www.data-compression.com/theoroy.html on October 10, 2003, 12 pgs.	
		RGB NETWORKS, "Comparing Adaptive HTTP Streaming Technologies", November 2011, Retrieved from: http://btreport.net/wp-content/uploads/2012/02/RGB-Adaptive-HTTP-Streaming-Comparison-1211-01.pdf, 20 pgs.	
		SCHULZRINNE et al., "Real Time Streaming Protocol 2.0 (RTSP): draft-ietfmmusic-rfc2326bis-27", MMUSIC Working Group of the Internet Engineering Task Force (IETF), March 9, 2011, 296 pages (presented in two parts)	

Doc code: IDS 14970412 - GAU: 2434 PTO/SB/08a (01-10)
Doc description: Information Disclosure Statement (IDS) Field Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		SIGLIN, "HTTP Streaming: What You Need to Know", streamingmedia.com, 2010, 15 pages.	
		SIGLIN,"Unifying Global Video Strategies, MP4 File Fragmentation for Broadcast, Mobile and Web Delivery", Nov. 16, 2011, 16 pgs.	
		TAN et al., "Video transcoding for fast forward/reverse video playback", IEEE ICIP, 2002, pp. I-713 to I-716.	
		UNKNOWN, "AVI RIFF File Reference (Direct X 8.1 C++ Archive)", printed from http://msdn.microsoft.com/archive/en-us/dx81_c/directx_cpp/htm/aviriifffilereference.asp?fr...on March 6, 2006, 7 pgs.	
		UNKNOWN, "Entropy and Source Coding (Compression)", TCOM 570, 1999-9, pp. 1-22	
		WANG ET AL., "Image Quality Assessment: From Error Visibility to Structural Similarity", IEEE Transactions on Image Processing, April 2004, Vol. 13, No. 4, pp. 600-612	
		WU et al., "Next Generation Mobile Multimedia Communications: Media Codec and Media Transport Perspectives", In China Communications, October 2006, pp. 30-44	
		ZAMBELLI, "IIS Smooth Streaming Technical Overview", Microsoft Corporation, March 2009.	

EXAMINER SIGNATURE			
Examiner Signature	/Abiy Getachew/ (11/27/2016)	Date Considered	11/27/2016

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	83720	"1" AND ((H04L2209/603 OR H04L63/0428 OR H04L9/0819 OR H04L9/32 OR H04L65/601 OR G06F17/30861 OR G06F3/0482 OR G06F3/0484 OR G06F3/04842 OR G06Q20/18 OR G06Q30/0255 OR G11B27/02 OR G11B27/28).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/27 18:49
L6	9	713/160.ccls. and ((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key).ab.)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/27 18:53
S1	2	("20090013195").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/07 11:23
S2	8	(("20090132721") or ("20090290706") or ("20090328228") or ("20130061040")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/07 11:27
S3	1	(13/340623).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/07 11:28
S4	18	(playback with device) with (processor with memory with client with application)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/08 09:49
S5	2	("20070024706").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/08 10:03
S8	2	("20090290706").PN.	US-PGPUB;	OR	OFF	2013/10/08

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			10:38
S9	8	(("20090132721") or ("20090290706") or ("20090328228") or ("20130061040")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/08 10:56
S10	17797	(playback with device)	USPAT	OR	OFF	2013/10/08 11:02
S14	1	(processor) with (memory with client with application) same (index with file) same (Streams with content with encryp$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/08 11:05
S15	3	(processor) near20 (index with file) same (Streams with content with encryp$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/08 11:06
S16	1	((plurality with streams) with (encrypt$3 adj key)) same (index$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/08 12:26
S17	4	((plurality with streams) with (encrypt$3 adj key)) same (index$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/10/08 12:27
S18	11	((plurality with streams) with (encrypt$3 adj key)) same (index$3 list$3 or index)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/10/09 11:02
S22	4	((plurality with streams) with (encrypt$3 adj key)) same (index$3 list$3 or index) and (playback with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/10/09 11:04
S23	2	((plurality with streams) near20 (index$3 list$3 or index)) near20 (identify or identifying or identified) same (plurality with alternative with streams)	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2013/10/09 11:18

			EPO; JPO; DERWENT; IBM_TDB			
S25	2	("20130032518").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 11:32
S26	2	("20090290706").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 11:48
S27	2	("20130061040").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 11:51
S29	2	("20130061040").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 11:55
S30	2	("20130061045").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 11:55
S32	2	(request with index with file with identifying with alternative with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 12:33
S33	4	("2003030324").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 12:39
S34	0	("20090387258").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 12:39
S35	0	("200900387258").PN.	US-PGPUB; USPAT;	OR	OFF	2013/10/09 12:39

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S36	2	("20090307258").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 12:40
S37	2	("20090132599").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 12:41
S38	0	(index with file) with (alternative streams of protected content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 12:55
S39	1	(index with file) with (alternative streams protected content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 12:55
S40	1	(index) with (alternative streams protected content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 12:55
S41	9	(index) with (streams protected content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 12:55
S42	2	("20080301734").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 12:59
S43	5	(index) near20 (streams protected content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 13:02

S44	2	(index) near20 (streams protected content).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 13:04
S46	5	(index or indexing or indexed) near20 (streams with content with protect$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 13:41
S47	2	(index or indexing or indexed) near20 (streams with content with protect$3).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 13:42
S48	30	(index or indexing or indexed) near20 (streams with content).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 13:43
S49	2	S48 and (streams with protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 13:44
S50	2	S48 and (streams same encrypted same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 13:45
S51	3	S48 and (encrypted same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 13:46
S52	4	(index or indexing or indexed) near20 (streams with content) near20 (protected with content with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:05
S53	2	("20030078930").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2013/10/09 14:06

			DERWENT; IBM_TDB			
S54	4	(index or indexing or indexed) near20 (protected with content with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:08
S55	60	(index or indexing or indexed) near20 (content with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:08
S56	4	(index or indexing or indexed) near20 (streams with content) near20 (content with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:08
S57	4	(index or indexing or indexed) near20 (streams) near20 (content with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:08
S58	4	(index or indexing or indexed) near20 (streams) near20 (cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:09
S59	4	(index or indexing or indexed) near20 (streams) with (content with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:10
S60	13	(index or indexing or indexed) near20 (streams same protect$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:11
S61	58	("5465353" | "5613004" | "5664016" | "5689639" | "5809498" | "6101602" | "6363463").PN. OR ("6671407").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2013/10/09 14:21
S62	6	(streams with content) near20 (protected with content with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 14:41

S63	20490	(client with application same processor)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/09 15:13
S64	1	(client with application same processor) with (index or indexing or indexed) near20 (Streams with content with encryp$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:16
S65	48	(client with application same processor) with (index or indexing or indexed)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:16
S66	1	(client with application same processor) with (index or indexing or indexed) near20 (Streams with encryp$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:17
S67	1	(client with application same processor) with (index or indexing or indexed) near20 (Streams with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:17
S68	2	(client with application same processor) with (index or indexing or indexed) near20 (cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:18
S69	12	(client with application same processor) with (index or indexing or indexed) near20 (Stream$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:19
S70	1	(client with application same processor) with (index or indexing or indexed) near20 (protect with Stream$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:19
S71	1	(client with application same processor) with (index or indexing or indexed) near20 (protect same Stream$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2013/10/09 15:20

			DERWENT; IBM_TDB			
S72	2	(client with application same processor) with (index or indexing or indexed) near20 (Stream$3) and (cryptographic with information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:21
S73	2	(client with application same processor) with (index or indexing or indexed) near20 (Stream$3) and (cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:21
S74	6	(application same processor) with (index or indexing or indexed) near20 (Stream$3) and (cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:21
S75	3	(processor) with (index or indexing or indexed) near20 (Stream$3) same (protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:23
S76	4	(processor) with (index or indexing or indexed) near20 (Stream$3) same (protected)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:24
S77	69	(index or indexing or indexed) near20 (Stream$3) same (protected)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:24
S78	5	S55 and S77	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 15:25
S79	2	(plurality with alternative with streams with protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:50
S80	308	(plurality with alternative with streams)	US-PGPUB; USPAT; USOCR;	OR	OFF	2013/10/09 17:50

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S81	2	(plurality with alternative with streams)same (cryptographic with information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:51
S82	2	(plurality with alternative with streams)same (cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:51
S83	2	(plurality with alternative with streams) near20 (content with encryp$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:52
S84	2	(plurality with alternative with streams) near20 (encryp$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:52
S85	4	(plurality with alternative with streams) near20 (key or encryption or decryption or code or encryp$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:54
S86	2	(plurality with alternative with streams) near20 (protect$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:56
S87	49731	(plurality with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:56
S88	51	(plurality with streams)same (cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:56
S89	27	(plurality with streams) near20 (cryptographic)	US-PGPUB;	OR	OFF	2013/10/09

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			17:56
S90	2	(plurality with streams) near20 (protect$3 same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:57
S91	27	S88 and S89	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 17:57
S92	9	(Request) with (index) near20 (plurality with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 18:01
S93	1	(Request) with (index) near20 (plurality with streams)same (cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 18:02
S94	1	(index) near20 (plurality with streams)same (cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 18:02
S95	3	(Request) with (index) near20 (protect$3 same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 18:03
S96	17	(index) near20 (protect$3 same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 18:03
S97	1	(plurality with streams) near20 (index) near20 (protect$3 same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2013/10/09 18:03

			IBM_TDB			
S98	4	(streams) near20 (index) near20 (protect$3 same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 18:04
S99	18	(streams) near20 (protect$3 same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/09 18:04
S101	13	(streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:15
S102	9	(streams with protected with video same DRM) same (DRM same encrypt$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:15
S103	3	(streams with protected with video same DRM) near20 (encrypt$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:16
S104	0	(memory with client with application) near20 (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:18
S105	0	(memory same application) near20 (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:19
S106	1	(client with application) near20 (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:19
S107	1	(Application) near20 (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2013/10/10 10:20

			EPO; JPO; DERWENT; IBM_TDB			
S108	3	(Application) same (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:20
S109	3	(processor) same (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:23
S111	1	(application with configures with processor) same (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:24
S112	1	(application same processor) same (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:25
S113	4	(application same processor) and (streams with protected with video same DRM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 10:25
S114	2	"13235729"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 12:26
S115	2	(streams with protected with video same DRM) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:14
S116	2	(streams same video same DRM) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:15
S117	20	(streams same video) near20 (Matroska)	US-PGPUB; USPAT;	OR	OFF	2013/10/10 14:15

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S118	1	S117 and (DRM with Header same Tracks)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:16
S119	10	(DRM with Header same Tracks)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:16
S120	1	S119 and (streams same video) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:17
S121	1	S119 and (streams) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:17
S122	1	S119 and (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:17
S123	2	("20060245727").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:21
S124	2	DRM same (streams same video) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:27
S125	9	index same (streams same video) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:28

S126	20	(Matroska with container with files)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:34
S127	2	S126 and (index or indexing or indexed) near20 (content with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/10 14:35
S128	17	S126 and (index or indexing or indexed)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	OFF	2013/10/10 14:35
S129	20	S117 and (streams same video) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:52
S130	3	S129 and (index or indexing or indexed) near20 (Stream$3) same (protected)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:55
S131	3	S129 and (index or indexing or indexed) same (Stream$3) same (protected)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:56
S132	3	S129 and (Stream$3) same (protected)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:56
S133	16	S129 and (index or indexing or indexed)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:56
S134	7	S129 and (processor) with (index or indexing or indexed)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2013/10/10 14:57

			DERWENT; IBM_TDB			
S135	2	(streams with protected) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:57
S136	9	S125 and (streams same video) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:58
S137	9	S125 and (streams) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 14:59
S138	21	(streams) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:00
S139	2	(DRM with Header) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:01
S140	2	(DRM) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:01
S141	3	(DRM) same (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:02
S142	7	(DRM with Header same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:49
S143	20	(DRM same Header same cryptographic)	US-PGPUB; USPAT; USOCR;	OR	OFF	2013/10/10 15:50

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S144	2	(streams) near20 (Matroska) near20 (DRM same Header same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:50
S145	2	(Matroska) near20 (DRM same Header same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:51
S146	2	(DRM same Header same cryptographic) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:51
S147	2	(DRM same cryptographic) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:51
S148	2	(DRM same Header same cryptographic) same (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:51
S149	4	(DRM same Header same cryptographic) and (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/10 15:52
S150	54	(bitrate with stream$4) same (alternative with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/15 10:46
S151	6	(bitrate with stream$4) same (alternative with streams) same (protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/15 10:46
S152	8	(bitrate with stream$4) same (alternative with streams)	US-PGPUB;	OR	OFF	2013/10/15

		same (protected cryptographic)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			10:47
S153	6	(bitrate with stream$4) same (alternative with streams) same (protected crypto$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/15 10:47
S154	1	713/160.ccls. and (bitrate with stream$4) same (alternative with streams) same (protected crypto$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/10/16 15:16
S155	1	(13/340623).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 12:47
S156	6105	("Digital Rights Management" or DRM)	USPAT	OR	OFF	2013/11/05 12:51
S158	3456	("Digital Rights Management" or DRM) same (DRM with (encryption or decryption or code))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 12:54
S159	2	("Digital Rights Management" or DRM) same (DRM with (encryption or decryption or code)) and (Matroska with container with files) with (Hypertext with Transfer)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 12:56
S160	4	(("20090132721") or ("20130061045")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 12:58
S162	4	("Digital Rights Management" or DRM) same (DRM with (encryption or decryption or code)) and ("top level index file")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 13:02
S163	35	("top level index file")	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2013/11/05 13:06

			EPO; JPO; DERWENT; IBM_TDB			
S164	3	("Digital Rights Management" or DRM) near20 ("top level index file")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 13:09
S165	10	("Digital Rights Management" or DRM) and ("top level index file")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 13:24
S166	5	(("20040039916") or ("20100138903")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 13:29
S167	35	("top level index file")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 13:48
S168	9	("top level index file").clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 13:52
S169	2	("20060245727").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 13:55
S170	2	("20090132599").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 14:05
S171	6	("2009/0132599").URPN.	USPAT	OR	OFF	2013/11/05 14:17
S172	27	processor and memory and ("top level index file")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 14:19

S173	20	processor and memory and ("top level index file")and (alternative with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 14:19
S175	16	S173 and (client with application)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 14:20
S176	6	(("20130046902") or ("8386621") or ("20090293116")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 14:24
S177	203241	(streams witrh protected with content with encrypted with common with cryptographic)	USPAT	OR	OFF	2013/11/05 16:21
S178	484775	(streams witrh protected with content with encrypted with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:21
S179	2	(streams with protected with content with encrypted with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:21
S180	40	(content with encrypted with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:23
S181	2	(streams) near20 (content with encrypted with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:24
S182	2	(playback) near20 (content with encrypted with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:24
S183	1015	(content with encrypted with cryptographic)	US-PGPUB; USPAT; USOCR;	OR	OFF	2013/11/05 16:24

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S184	2	(streams with protected with content with encrypted with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:24
S185	20	(streams same content with encrypted with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:25
S186	2	(plurality with streams same content with encrypted with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:25
S187	2	(streams same content with encrypted with common with cryptographic) and (access with protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:26
S188	20	(streams same content with encrypted with common with cryptographic) and (access with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:26
S189	6	S188 and (protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:27
S190	2	S188 and (alternative with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:33
S191	2	(streams same content with encrypted with common with cryptographic) and (access with content) and (alternative with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:34
S192	2	(content with encrypted with common with	US-PGPUB;	OR	OFF	2013/11/05

		cryptographic) and (alternative with streams)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			16:34
S193	5972	(alternative with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:34
S194	2	(alternative with streams) near20 (content with encrypted with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:35
S195	2	(alternative with streams) near20 (encrypted with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:35
S196	2	(alternative with streams) near20 (content with encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:35
S197	2	(alternative with streams) near20 (encrypted with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:35
S198	23	(alternative with streams) near20 (encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:36
S199	3	(alternative with streams) near20 (encrypted) same common	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:36
S200	2	(alternative with streams) near20 (encrypted) same (cryptographic with information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2013/11/05 16:37

			IBM_TDB			
S201	1907	(encrypted) near20 (cryptographic with information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:38
S202	2	S201 and (alternative with streams) near20 (encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:38
S203	516	(encrypt$3 with common with cryptographic with key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:39
S204	1	(alternative with streams) near20 (encrypt$3 with common with cryptographic with key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:39
S205	1	(streams) near20 (encrypt$3 with common with cryptographic with key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:39
S206	176	(streams data content) near20 (encrypt$3 with common with cryptographic with key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:41
S207	11	(streams data content) near20 (encrypt$3 with common with cryptographic with key) and (playback with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:41
S208	5	(streams data content) near20 (encrypt$3 with common with cryptographic with key) and (playback with content) and (index with file)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:42
S209	6	(streams data content) near20 (encrypt$3 with common with cryptographic with key) and (playback with content).clm.	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2013/11/05 16:47

			EPO; JPO; DERWENT; IBM_TDB			
S210	29	(streams data content) near20 (encrypt$3 with common with cryptographic with key).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:48
S211	2	("20040193876").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:51
S212	2	("20020078353").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 16:58
S213	1	("Digital Rights Management" or DRM) near20 (encrypt$3 with common with cryptographic with key).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 17:01
S214	1	(DRM) near20 (encrypt$3 with common with cryptographic with key).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 17:01
S215	3	("Digital Rights Management" or DRM) and (encrypt$3 with common with cryptographic with key).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 17:02
S216	1	("Digital Rights Management" or DRM) near20 (encrypt$3 with common with cryptographic with key).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 17:03
S217	1	(DRM) near20 (encrypt$3 with common with cryptographic with key).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/05 17:03
S218	2	(DRM) near20 (encrypt$3 with common with cryptographic).clm.	US-PGPUB; USPAT;	OR	OFF	2013/11/05 17:03

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S219	1120	(hierarchical with index with structure)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:13
S220	3	(hierarchical with index with structure) and Soroushian	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:13
S221	4	(hierarchical with index with structure) and (top with level with index with file)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:18
S224	2	(hierarchical with index with structure) and (top with level with index with file) and (content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:25
S227	2	(hierarchical with index with structure) same (top with level with index with file)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:26
S230	13	(streams) same (top with level with index with file)near20 (content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:47
S231	12	(streams) same (top with level with index with file)near20 (playback with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:47
S232	3	(streams) same (top with level with index with file)near20 (playback with content).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:49

S233	2	("7295752").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:51
S234	1	(10/067550).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:53
S235	2	("20020150243").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 15:57
S236	14	(top with level with index with file)near20 (playback with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:01
S237	2	("20080301734").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:09
S238	2	("20070074254").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:13
S239	35	("top level index file")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:17
S240	9	("top level index file") and (encrypted same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:18
S241	1	(level with index) near20 (encrypted same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2013/11/06 16:19

			DERWENT; IBM_TDB			
S242	1	(level with index) near20 (common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:20
S243	45	(level with index) near20 (encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:21
S244	1	(top with level with index) near20 (encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:22
S245	72	(top with level with index) and (encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:23
S246	41	(top with level with index) and (encrypted same using)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:23
S247	19	(top with level with index) and (encrypted same using with key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:25
S248	1	(top with level with index) near20 (encrypted same encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:48
S249	45	(level with index) near20 (encrypted same encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:48
S250	6063	(alternative with streams)	US-PGPUB; USPAT; USOCR;	OR	OFF	2013/11/06 16:51

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S251	2	(alternative with streams) near20 (encrypted with using with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:52
S252	2	(alternative with streams) near20 (encrypted with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:52
S253	2	(alternative with streams) near20 (encrypt$5 with common with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:52
S254	3	(alternative with streams) near20 (encrypt$5 with cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:53
S255	23	(alternative with streams) near20 (encrypted with encrypt$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:53
S256	117	(("top level index file") or (top with level with index with file))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:54
S257	2	S255 and S256	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:55
S258	8	(alternative with streams) near20 (encrypted with using with encrypt$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/06 16:55
S259	2	("20080046369").PN.	US-PGPUB;	OR	OFF	2013/11/07

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			09:51
S261	117	(top with level with index with file)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:30
S265	3	((top high) with (level layer) with (file$1 document$1 stream content)) near20 (Symmetric common secret) near3 (key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:39
S266	1	((top) with (level) with (stream content)) near20 (Symmetric common secret) near3 (key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:44
S269	35	(top with level) near20 (Symmetric common secret) near3 (key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:46
S270	1	S269 and (protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:46
S273	32	((top high) with (index file)) near20 (Symmetric common secret) near3 (key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:48
S274	1	((top high) with (level) with (index)) near20 (Symmetric common secret) near3 (key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:49
S277	2	((top) with (level) with (index)) same (Symmetric common secret) near3 (key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2013/11/07 10:51

			IBM_TDB			
S278	8154	((encrypted with using) with (Symmetric common secret) near3 (key))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:52
S279	11092	((encrypted with using) with (Symmetric common secret))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:52
S280	1	((top with level with index with file) near20 (Symmetric common secret))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:55
S285	15	((top with index) near20 (Symmetric))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:56
S286	3	"380"/$.ccls. and (top with level with index with file)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:57
S287	2	"380"/$.ccls. and ((top high) with (level layer) with (file$1 document$1 stream content)) near20 (Symmetric common secret) near3 (key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 10:58
S290	742	streams near20 ((top high) with (level layer) with (file$1 document$1 stream content))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 11:40
S291	7	streams near20 ((top high) with (level layer) with (file$1 document$1 stream content)) near20 (Symmetric common secret)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 11:41
S292	1	streams near20 ((top) with (level layer) with (file$1)) near20 (Symmetric common secret)	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2013/11/07 11:43

			EPO; JPO; DERWENT; IBM_TDB			
S294	17	streams and ((top) with (level layer) with (file$1)) near20 (Symmetric secret)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 11:43
S295	1	streams and ((top) with (level layer) with (file$1)) near20 (Symmetric encryp$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:19
S296	11	(streams frame packet stream bitstream) and ((top) with (level layer) with (file$1)) near20 (Symmetric encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:22
S297	3	(top with level with index with file) and (streams frame packet stream bitstream) near20 (Symmetric encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:24
S298	49	(top with index with file) and (streams frame packet stream bitstream) near20 (Symmetric encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:24
S299	1	(top with index with file) near20 ((common with cryptographic) and (playback with content))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:33
S300	1	(top with index with file) near20 ((Symmetric encrypt$3) and (playback with content))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:34
S301	1	(top with index with file) near20 ((Symmetric encrypt$3) and (content))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:35
S302	2	(top with index with file) near20 (Symmetric encrypt$3)	US-PGPUB; USPAT;	OR	OFF	2013/11/07 12:35

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S303	452	(common with cryptographic with information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:37
S304	5	(top with level with index with file) and S303	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:37
S305	5	(top with level with index) and S303	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:37
S306	16	(top with level with file) and S303	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:38
S308	4	(top with file) near20 (encrypted with using with key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:41
S309	1	(11/611188).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 12:43
S310	91230	(content with encrypt$3 with using encrypt$3)	USPAT	OR	OFF	2013/11/07 12:59
S312	1	(top with level with index with file) near20 (content with encrypt$3 with using encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:01
S313	22	(top with level with index with file) and (content with encrypt$3 with using encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2013/11/07 13:01

			DERWENT; IBM_TDB			
S314	7	(top with level with index with file) and (content with encrypt$3 with using encrypt$3) and (plurality with streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:02
S315	14	(top with level with index with file) and (content with encrypt$3 with using encrypt$3) and (streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:02
S316	22	(top with level with index with file) and (content with encrypt$3 with using encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:18
S317	22	(top with level with index with file) and (encrypt$3 with using encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:22
S318	600	((top high) with (level layer) with (file$1 document$1 stream content)) near20 (Symmetric common secret)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:23
S319	210	S318 and (encrypt$3 with using encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:24
S320	1	S319 and (top with index with file)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:24
S321	1	S319 and (top with index)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:24
S322	32	S319 and (index with file)	US-PGPUB; USPAT; USOCR;	OR	OFF	2013/11/07 13:24

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S323	20	S319 and (index with file) and streams	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:25
S324	2	DRM and ((encryption decrption) with (content)) and (matroska with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:29
S325	2	("20090158318").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:41
S326	254	(distribute with common with key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:46
S329	3	(index with file) and (distribute with common with key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 13:47
S330	2	("20090290706").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/07 15:27
S331	2	("20090328228").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 13:21
S332	8	(("20090132721") or ("20090290706") or ("20090328228") or ("20130061040")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 13:55
S333	77792	(plurality same streams)	US-PGPUB;	OR	OFF	2013/11/08

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			14:10
S334	41	(plurality same streams) same (protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:11
S335	8	(plurality same streams) near10 (protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:11
S336	1	(index with file) near10 (plurality same streams) near10 (protected with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:12
S337	31	(plurality same streams) and (top with level with index with file)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:15
S338	117	(top with level with index with file)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:22
S340	1	(top with level with index with file) near20 (common crypto$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:23
S345	14	(top with level with index with file) near20 (playback with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:25
S346	1	(top with level with index with file) near20 encrypt$4 same (playback with content)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2013/11/08 14:26

			IBM_TDB			
S348	1	(top with level with index with file) near20 encrypt$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:27
S349	4	(top with level with index with file) near20 (playback with content).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 14:28
S350	117	(encrypt$ with stream$ with (common "same" identical$5) with (encrypt$ with Stream$ with (common "same" identical$5) with key)"ti.key").clm. (encrypt$ with stream$ with (common "same" identical$5) with key).ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 16:18
S351	110	S350 and @ad<"20110901"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 16:19
S353	30	S351 and ("713"/$ "726"/$380/$).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 16:21
S354	7	S353 and ((access$ play$ play$1back playback) with (Common "same" identical$5) with Key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/08 16:22
S356	2	("20070067646").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/11 12:10
S357	2	("20130046902").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/11 12:22
S358	22	(multimedia with digital with data with transmission with procedure)	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2013/11/11 13:06

			EPO; JPO; DERWENT; IBM_TDB			
S359	12733	((access$ play$ play$1back playback) with (Common "same" identical$5) with Key)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/11 13:30
S360	1	(top with level with index with file) near20 encrypt$4 same (playback)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/11 14:32
S361	2	("20080172341").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 10:12
S362	2	("20130046902").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 11:43
S363	87	(stream$4 same bitrate with stream$3 with encoded with media)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 11:51
S364	11	(stream$4 same bitrate with stream$3 with encoded with media) same (Matroska same container ame files same Hypertext with Transfer with Protocol)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 11:52
S365	10	(stream$4 same bitrate with stream$3 with encoded with media) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 11:53
S366	87	(stream$4 same bitrate with stream$3 with encoded with media)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 11:53
S367	4127	(stream$3 with encoded with media)	US-PGPUB; USPAT;	OR	OFF	2013/11/12 11:53

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S368	12	(stream$3 with encoded with media) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 11:53
S369	42	(stream$3) near20 (Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 11:55
S370	9	S369 and processor and (memory with client with application)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 11:56
S371	2	("6005621").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 12:00
S372	1	(stream$3 with encoded with media with Matroska)	USPAT	OR	OFF	2013/11/12 14:28
S373	0	(stream$3 with encoded with media near20 Matroska)	USPAT	OR	OFF	2013/11/12 14:29
S374	1	(stream$3 with encoded with media same Matroska)	USPAT	OR	OFF	2013/11/12 14:30
S375	3	(stream$3 with encoded same Matroska)	USPAT	OR	OFF	2013/11/12 14:30
S377	11	("top level index file" near20 Matroska)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 14:32
S378	2	("20070140647").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 14:35
S379	159	Matroska	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2013/11/12 15:52

			DERWENT; IBM_TDB			
S380	143	Matroska and (plurality adj$3 streams)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 15:52
S381	0	Matroska and (plurality adj$3 streams) near20 (common with crypt$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 15:53
S382	2	Matroska and (plurality adj$3 streams) near20 (encrypt$3 with use$3 same cryptographic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 15:54
S383	6	Matroska and (plurality adj$3 streams) near20 (encrypt$3 with use$3 same encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 15:55
S384	6	Matroska and (streams) near20 (encrypt$3 with use$3 same encrypt$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 16:07
S385	2	("20100107260").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 16:53
S386	2	("20110135090").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 17:10
S387	2	("20040081333").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/12 17:21
S388	2	("20090290706").PN.	US-PGPUB; USPAT; USOCR;	OR	OFF	2013/11/14 16:27

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S389	1	(13/258981).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/14 16:33
S390	2	("20110283361").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/15 14:33
S391	2	("2009290706").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/16 11:31
S392	2	("20090290706").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/16 11:31
S393	2	("20070067646").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/16 11:50
S394	1	(13/340623).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/16 14:10
S395	4	("2011103364").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/16 14:51
S396	1	(13/579020).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/16 14:51
S397	2	("20090328228").PN.	US-PGPUB;	OR	OFF	2013/11/16

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			14:52
S398	2	("20090132721").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/16 14:53
S399	0	("20090328228and(protect$4withframewithvideo)").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 10:38
S400	0	"20090328228" and(protect$4 with frame with video)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 10:40
S401	3	"20090328228" and (protect$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 10:41
S403	36482	(protect$4)same (encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 10:48
S405	2	("20090328228").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 10:48
S412	10	("digital rights management" or "DRM") near20 (protect$4 with frame with video)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 11:08
S413	2	("digital rights management" or "DRM") near20 (protect$4 with frame with video) same (video same encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2013/11/17 11:11

			IBM_TDB			
S414	9	("digital rights management" or "DRM") near20 (protect$4 with frame with video) and (video same encrypted)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 11:13
S415	4	("2011103364").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 12:45
S418	4	("2011103364").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 14:39
S419	1	(13/579020).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 14:39
S420	2	("20110103364").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 15:19
S429	4	("2011103364").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 15:27
S430	1	WO-2011103364-$.did.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 15:28
S431	1	WO-2011103364-$.did.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 15:30
S432	2	("20090132721").PN.	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2013/11/17 16:42

			EPO; JPO; DERWENT; IBM_TDB			
S433	4	("2011103364").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 17:08
S434	0	("20111003364").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/17 17:08
S435	2034	((access$ play$ play$1back playback) with (common "same" identical$5) with key).ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 10:41
S436	12060	((access$ play$ play$1back playback) with (common "same" identical$5) with key) and @ad<"20110901"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 10:43
S440	396	(("20010046299" | "20020051494" | "20020110193" | "20030001964" | "20030002578" | "20030035488" | "20030035545" | "20030035546" | "20030093799" | "20030152370" | "20030163824" | "20030174844" | "20030185542" | "20030231863" | "20030231867" | "20030233464" | "20030236836" | "20030236907" | "20040081333" | "20040105549" | "20040136698" | "20040255115" | "20050038826" | "20050071280" | "20050193070" | "20050193322" | "20050204289" | "20050207578" | "20050273695" | "20060036549" | "20060052095" | "20060064605" | "20060129909" | "20060245727" | "20070031110" | "20070086528" | "20070140647" | "20070154165" | "20070168541" | "20070168542" | "20070180125" | "20070192810" | "20070192818" | "20070195744" | "20070239839" | "20070292107" | "20080120389" | "20080137736" | "20080256105" | "20080263354" | "20080310454" | "20080310496" | "20090031220" | "20090048852" | "20090055546" | "20090132599" | "20090169181" | "20090201988" | "20090307258" | "20090307267" | "20090313544" | "20100040351" | "20100074324" | "20100095121" | "20110047209" | "20110066673" | "20110080940" | "20110126191" | "20110150100" | "20110153785" | "20110197237" | "20110225315" | "20110239078" | "20110246659" | "20110302319" | "20110314176" | "20120023251" | "20120093214" | "20120170642" | "20120170906" | "20120254455" | "20130046902" | "20130166765" | "20130166906" | "20130311094" | "20140101722" | "20140189065" | "20140201382" | "5361332" | "5404436" | "5502766" | "5509070" | "5754648" | "5805700" | "5892900" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 14:45

		"5999812" | "6031622" | "6155840" | "6175921" | "6195388" | "6282653" | "6289450" | "6449719" | "6466671" | "6510513" | "6658056" | "6807306" | "6810389" | "6859496" | "6956901" | "6965993" | "0604469" | "7007170" | "7043473" | "7151832" | "7151833" | "7165175" | "7185363" | "7242772" | "7328345" | "7349886" | "7356143" | "7376831" | "7406174" | "7472280" | "7478325" | "7484103" | "7526450" | "7594271" | "7640435" | "7817608" | "7991156" | "8023562" | "8046453" | "8054880" | "8201264" | "8225061" | "8233768" | "8249168" | "8261356" | "8270473" | "8270819" | "8289338" | "8291460" | "8311115" | "8321556" | "8386621" | "8412841" | "8456380" | "8472792" | "8515265" | "8781122") or (".PN")).PN.				
S441	0	(("("20090132721" | "20090290706" | "20090328228" | "20130061040").PN.").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 15:05
S442	10	(("20090132721" | "20090290706" | "20090328228" | "20130061040") or (".PN.")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 15:05
S443	4	(("5715403") or ("6141754")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 15:23
S444	0	(("("20010046299" | "20020051494" | "20020110193" | "20030001964" | "20030002578" | "20030035488" | "20030035545" | "20030035546" | "20030093799" | "20030152370" | "20030163824" | "20030174844" | "20030185542" | "20030231863" | "20030231867" | "20030233464" | "20030236836" | "20030236907" | "20040081333" | "20040105549" | "20040136698" | "20040255115" | "20050038826" | "20050071280" | "20050193070" | "20050193322" | "20050204289" | "20050207578" | "20050273695" | "20060036549" | "20060052095" | "20060064605" | "20060129909" | "20060245727" | "20070031110" | "20070086528" | "20070140647" | "20070154165" | "20070168541" | "20070168542" | "20070180125" | "20070192810" | "20070192818" | "20070195744" | "20070239839" | "20070292107" | "20080120389" | "20080137736" | "20080256105" | "20080263354" | "20080310454" | "20080310496" | "20090031220" | "20090048852" | "20090055546" | "20090132599" | "20090169181" | "20090201988" | "20090307258" | "20090307267" | "20090313544" | "20100040351" | "20100074324" | "20100095121" | "20110047209" | "20110066673" | "20110080940" | "20110126191" | "20110150100" | "20110153785" | "20110197237" | "20110225315" | "20110239078" | "20110246659" | "20110302319" | "20110314176" | "20120023251" | "20120093214" | "20120170642" | "20120170906" | "20120254455" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 15:25

		"20130046902" | "20130166765" | "20130166906" | "20130311094" | "20140101722" | "20140189065" | "20140201382" | "5361332" | "5404436" | "5502766" | "5509070" | "5754648" | "5805700" | "5892900" | "5999812" | "6031622" | "6155840" | "6175921" | "6195388" | "6282653" | "6289450" | "6449719" | "6466671" | "6510513" | "6658056" | "6807306" | "6810389" | "6859496" | "6956901" | "6965993" | "0604469" | "7007170" | "7043473" | "7151832" | "7151833" | "7165175" | "7185363" | "7242772" | "7328345" | "7349886" | "7356143" | "7376831" | "7406174" | "7472280" | "7478325" | "7484103" | "7526450" | "7594271" | "7640435" | "7817608" | "7991156" | "8023562" | "8046453" | "8054880" | "8201264" | "8225061" | "8233768" | "8249168" | "8261356" | "8270473" | "8270819" | "8289338" | "8291460" | "8311115" | "8321556" | "8386621" | "8412841" | "8456380" | "8472792" | "8515265" | "8781122")").PN.				
S445	396	("20010046299" | "20020051494" | "20020110193" | "20030001964" | "20030002578" | "20030035488" | "20030035545" | "20030035546" | "20030093799" | "20030152370" | "20030163824" | "20030174844" | "20030185542" | "20030231863" | "20030231867" | "20030233464" | "20030236836" | "20030236907" | "20040081333" | "20040105549" | "20040136698" | "20040255115" | "20050038826" | "20050071280" | "20050193070" | "20050193322" | "20050204289" | "20050207578" | "20050273695" | "20060036549" | "20060052095" | "20060064605" | "20060129909" | "20060245727" | "20070031110" | "20070086528" | "20070140647" | "20070154165" | "20070168541" | "20070168542" | "20070180125" | "20070192810" | "20070192818" | "20070195744" | "20070239839" | "20070292107" | "20080120389" | "20080137736" | "20080256105" | "20080263354" | "20080310454" | "20080310496" | "20090031220" | "20090048852" | "20090055546" | "20090132599" | "20090169181" | "20090201988" | "20090307258" | "20090307267" | "20090313544" | "20100040351" | "20100074324" | "20100095121" | "20110047209" | "20110066673" | "20110080940" | "20110126191" | "20110150100" | "20110153785" | "20110197237" | "20110225315" | "20110239078" | "20110246659" | "20110302319" | "20110314176" | "20120023251" | "20120093214" | "20120170642" | "20120170906" | "20120254455" | "20130046902" | "20130166765" | "20130166906" | "20130311094" | "20140101722" | "20140189065" | "20140201382" | "5361332" | "5404436" | "5502766" | "5509070" | "5754648" | "5805700" | "5892900" | "5999812" | "6031622" | "6155840" | "6175921" | "6195388" | "6282653" | "6289450" | "6449719" | "6466671" | "6510513" | "6658056" | "6807306" | "6810389" | "6859496" | "6956901" | "6965993" | "0604469" | "7007170" | "7043473" | "7151832" | "7151833" | "7165175" | "7185363" | "7242772" | "7328345" | "7349886" | "7356143" | "7376831" | "7406174" | "7472280" | "7478325" | "7484103" | "7526450" | "7594271" | "7640435" | "7817608" | "7991156" | "8023562" | "8046453" | "8054880" | "8201264" | "8225061" | "8233768" | "8249168" | "8261356" | "8270473" | "8270819" | "8289338" | "8291460" | "8311115" | "8321556" | "8386621" | "8412841" | "8456380" | "8472792" | "8515265" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 15:25

		"8781122").PN.				
S446	396	("20010046299" | "20020051494" | "20020110193" | "20030001964" | "20030002578" | "20030035488" | "20030035545" | "20030035546" | "20030093799" | "20030152370" | "20030163824" | "20030174844" | "20030185542" | "20030231863" | "20030231867" | "20030233464" | "20030236836" | "20030236907" | "20040081333" | "20040105549" | "20040136698" | "20040255115" | "20050038826" | "20050071280" | "20050193070" | "20050193322" | "20050204289" | "20050207578" | "20050273695" | "20060036549" | "20060052095" | "20060064605" | "20060129909" | "20060245727" | "20070031110" | "20070086528" | "20070140647" | "20070154165" | "20070168541" | "20070168542" | "20070180125" | "20070192810" | "20070192818" | "20070195744" | "20070239839" | "20070292107" | "20080120389" | "20080137736" | "20080256105" | "20080263354" | "20080310454" | "20080310496" | "20090031220" | "20090048852" | "20090055546" | "20090132599" | "20090169181" | "20090201988" | "20090307258" | "20090307267" | "20090313544" | "20100040351" | "20100074324" | "20100095121" | "20110047209" | "20110066673" | "20110080940" | "20110126191" | "20110150100" | "20110153785" | "20110197237" | "20110225315" | "20110239078" | "20110246659" | "20110302319" | "20110314176" | "20120023251" | "20120093214" | "20120170642" | "20120170906" | "20120254455" | "20130046902" | "20130166765" | "20130166906" | "20130311094" | "20140101722" | "20140189065" | "20140201382" | "5361332" | "5404436" | "5502766" | "5509070" | "5754648" | "5805700" | "5892900" | "5999812" | "6031622" | "6155840" | "6175921" | "6195388" | "6282653" | "6289450" | "6449719" | "6466671" | "6510513" | "6658056" | "6807306" | "6810389" | "6859496" | "6956901" | "6965993" | "0604469" | "7007170" | "7043473" | "7151832" | "7151833" | "7165175" | "7185363" | "7242772" | "7328345" | "7349886" | "7356143" | "7376831" | "7406174" | "7472280" | "7478325" | "7484103" | "7526450" | "7594271" | "7640435" | "7817608" | "7991156" | "8023562" | "8046453" | "8054880" | "8201264" | "8225061" | "8233768" | "8249168" | "8261356" | "8270473" | "8270819" | "8289338" | "8291460" | "8311115" | "8321556" | "8386621" | "8412841" | "8456380" | "8472792" | "8515265" | "8781122").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 19:20
S447	4	("5715403" | "6141754").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 19:25
S448	2	("20090290706").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:01
S450	2	("20090328228").PN.	US-PGPUB; USPAT;	OR	OFF	2014/09/22 10:03

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S451	3	("20090132721").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:04
S452	2	("20090158318").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:06
S453	3	("20060101269").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:08
S454	2	("20070283448").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:09
S455	2	("20090290706").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:23
S456	2	("20090328228").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:24
S457	8	("2008013272").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:24
S458	2	("20080132721").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:24

S459	3	("20090132721").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:25
S460	0	("WO-2011103364-$.did.").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:41
S461	3	("20130054972").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:43
S465	2	WO-2011103364-$.did.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:45
S466	2	("20090158318").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:46
S467	2	("20060191289").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:47
S468	3	("20060101269").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 10:47
S469	396	("20010046299" | "20020051494" | "20020110193" | "20030001964" | "20030002578" | "20030035488" | "20030035545" | "20030035546" | "20030093799" | "20030152370" | "20030163824" | "20030174844" | "20030185542" | "20030231863" | "20030231867" | "20030233464" | "20030236836" | "20030236907" | "20040081333" | "20040105549" | "20040136698" | "20040255115" | "20050038826" | "20050071280" | "20050193070" | "20050193322" | "20050204289" | "20050207578" | "20050273695" | "20060036549" | "20060052095" | "20060064605" | "20060129909" | "20060245727" | "20070031110" | "20070086528" | "20070140647" | "20070154165" | "20070168541" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 13:26

		"20070168542" | "20070180125" | "20070192810" | "20070192818" | "20070195744" | "20070239839" | "20070292107" | "20080120389" | "20080137736" | "20080256105" | "20080263354" | "20080310454" | "20080310496" | "20090031220" | "20090048852" | "20090055546" | "20090132599" | "20090169181" | "20090201988" | "20090307258" | "20090307267" | "20090313544" | "20100040351" | "20100074324" | "20100095121" | "20110047209" | "20110066673" | "20110080940" | "20110126191" | "20110150100" | "20110153785" | "20110197237" | "20110225315" | "20110239078" | "20110246659" | "20110302319" | "20110314176" | "20120023251" | "20120093214" | "20120170642" | "20120170906" | "20120254455" | "20130046902" | "20130166765" | "20130166906" | "20130311094" | "20140101722" | "20140189065" | "20140201382" | "5361332" | "5404436" | "5502766" | "5509070" | "5754648" | "5805700" | "5892900" | "5999812" | "6031622" | "6155840" | "6175921" | "6195388" | "6282653" | "6289450" | "6449719" | "6466671" | "6510513" | "6658056" | "6807306" | "6810389" | "6859496" | "6956901" | "6965993" | "0604469" | "7007170" | "7043473" | "7151832" | "7151833" | "7165175" | "7185363" | "7242772" | "7328345" | "7349886" | "7356143" | "7376831" | "7406174" | "7472280" | "7478325" | "7484103" | "7526450" | "7594271" | "7640435" | "7817608" | "7991156" | "8023562" | "8046453" | "8054880" | "8201264" | "8225061" | "8233768" | "8249168" | "8261356" | "8270473" | "8270819" | "8289338" | "8291460" | "8311115" | "8321556" | "8386621" | "8412841" | "8456380" | "8472792" | "8515265" | "8781122").PN.				
S470	4	("5715403" | "6141754").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 13:32
S471	396	("20010046299" | "20020051494" | "20020110193" | "20030001964" | "20030002578" | "20030035488" | "20030035545" | "20030035546" | "20030093799" | "20030152370" | "20030163824" | "20030174844" | "20030185542" | "20030231863" | "20030231867" | "20030233464" | "20030236836" | "20030236907" | "20040081333" | "20040105549" | "20040136698" | "20040255115" | "20050038826" | "20050071280" | "20050193070" | "20050193322" | "20050204289" | "20050207578" | "20050273695" | "20060036549" | "20060052095" | "20060064605" | "20060129909" | "20060245727" | "20070031110" | "20070086528" | "20070140647" | "20070154165" | "20070168541" | "20070168542" | "20070180125" | "20070192810" | "20070192818" | "20070195744" | "20070239839" | "20070292107" | "20080120389" | "20080137736" | "20080256105" | "20080263354" | "20080310454" | "20080310496" | "20090031220" | "20090048852" | "20090055546" | "20090132599" | "20090169181" | "20090201988" | "20090307258" | "20090307267" | "20090313544" | "20100040351" | "20100074324" | "20100095121" | "20110047209" | "20110066673" | "20110080940" | "20110126191" | "20110150100" | "20110153785" | "20110197237" | "20110225315" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/22 13:33

		"20110239078" | "20110246659" | "20110302319" | "20110314176" | "20120023251" | "20120093214" | "20120170642" | "20120170906" | "20120254455" | "20130046902" | "20130166765" | "20130166906" | "20130311094" | "20140101722" | "20140189065" | "20140201382" | "5361332" | "5404436" | "5502766" | "5509070" | "5754648" | "5805700" | "5892900" | "5999812" | "6031622" | "6155840" | "6175921" | "6195388" | "6282653" | "6289450" | "6449719" | "6466671" | "6510513" | "6658056" | "6807306" | "6810389" | "6859496" | "6956901" | "6965993" | "0604469" | "7007170" | "7043473" | "7151832" | "7151833" | "7165175" | "7185363" | "7242772" | "7328345" | "7349886" | "7356143" | "7376831" | "7406174" | "7472280" | "7478325" | "7484103" | "7526450" | "7594271" | "7640435" | "7817608" | "7991156" | "8023562" | "8046453" | "8054880" | "8201264" | "8225061" | "8233768" | "8249168" | "8261356" | "8270473" | "8270819" | "8289338" | "8291460" | "8311115" | "8321556" | "8386621" | "8412841" | "8456380" | "8472792" | "8515265" | "8781122").PN.				

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	6	((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key)))and (bitrate with stream$4).clm.	US-PGPUB; USPAT	OR	OFF	2016/11/27 18:44
L2	6	1 AND ((H04L2209/603 OR H04L63/0428 OR H04L9/0819 OR H04L9/32 OR H04L65/601 OR G06F17/30861 OR G06F3/0482 OR G06F3/0484 OR G06F3/04842 OR G06Q20/18 OR G06Q30/0255 OR G11B27/02 OR G11B27/28).CPC.)	US-PGPUB; USPAT	OR	OFF	2016/11/27 18:49
L4	91	((H04L2209/603 OR H04L63/0428 OR H04L9/0819 OR H04L9/32 OR H04L65/601 OR G06F17/30861 OR G06F3/0482 OR G06F3/0484 OR G06F3/04842 OR G06Q20/18 OR G06Q30/0255 OR G11B27/02 OR G11B27/28).CPC.) and ((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key).ab.)).clm.	US-PGPUB; USPAT	OR	OFF	2016/11/27 18:51
L5	6	((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key)))and (bitrate with stream$4).clm. AND ((H04L2209/603 OR H04L63/0428 OR H04L9/0819 OR H04L9/32 OR H04L65/601 OR G06F17/30861 OR G06F3/0482 OR	US-PGPUB; USPAT	OR	OFF	2016/11/27 18:52

		G06F3/0484 OR G06F3/04842 OR G06Q20/18 OR G06Q30/0255 OR G11B27/02 OR G11B27/28).CPC.)				
S477	6	713/160.ccls. and ((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key).ab.)).clm.	US-PGPUB; USPAT; * No UPAD	OR	OFF	2014/09/22 14:03
S483	1	((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key)))and (bitrate with stream$4).clm.	US-PGPUB; USPAT; * No UPAD	OR	OFF	2014/09/22 14:08
S484	1	713/160.ccls. and ((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key)))and (bitrate with stream$4).clm.	US-PGPUB; USPAT; * No UPAD	OR	OFF	2014/09/22 14:08

11/27/2016 6:57:41 PM
C:\Users\agetachew\Documents\EAST\Workspaces\14970412.wsp

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.G./

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

Receipt date: 11/14/2016

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code [1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		4009331		1977-02-22	Goldmark et al.	
		4694357		1987-09-15	Rahman et al.	
		4802170		1989-01-31	Trottier, Lorne	
		4964069		1990-10-16	Ely, Joseph C.	
		5119474		1992-06-02	Beitel, Bradley J., et al.	
		5274758		1993-12-28	Beitel, Bradley J., et al.	
		5361332	A	1994-11-01	Yoshida, Masayuki et al.	
		5396497		1995-03-07	Veltman, Markus H.	
		5404436	A	1995-04-04	Hamilton, Robert H.	
		5420801		1995-05-30	Dockter, Michael J., et al.	
		5420974		1995-05-30	Morris, James K., et al.	
		5471576		1995-11-28	Yee, Raymond L.	
		5479303		1995-12-26	Suzuki et al.	
		5487167		1996-01-23	Dinallo, Chris A., et al.	
		5502766	A	1996-03-26	Boebert, William et al.	
		5509070	A	1996-04-16	Schull, Jonathan	
		5533021		1996-07-02	Branstad, Mark W., et al.	
		5537408		1996-07-16	Branstad, Mark W., et al.	
		5539908		1996-07-23	Chen, Fetchi et al.	
		5541662		1996-07-30	Adams, Robert et al.	
		5583652		1996-12-10	Ware, Malcohm S.	
		5589993	A	1996-12-31	Naimpally, Saiprasad et al.	
		5627936		1997-05-06	Prasad, Rama R.	
		5633472		1997-05-27	DeWitt, Frederick J., et al.	
		5642171		1997-06-24	Baumgartner, Donn et al.	
		5655117		1997-08-05	Goldberg et al.	
		5664044		1997-09-02	Ware, Malcolm S.	
		5675382		1997-10-07	Bauchspies	
		5675511		1997-10-07	Prasad, Rama R., et al.	
		5684542		1997-11-04	Tsukagoshi	
		5715403	A	1998-02-03	Stefik, Mark	
		5717816		1998-02-10	Boyce et al.	
		5719786		1998-02-17	Nelson et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		5745643		1998-04-28	Mishina, M.	
		5751280		1998-05-12	Abbott, Michael J.	
		5754648	A	1998-05-19	Ryan et al., John	
		5763800		1998-06-09	Rossum, David P., et al.	
		5765164		1998-06-09	Prasad, Rama R., et al.	
		5794018		1998-08-11	Vrvilo, Benjamin et al.	
		5805700	A	1998-09-08	Nardone, Joseph et al.	
		5822524		1998-10-13	Chen et al., Huey-Shiang	
		5828370		1998-10-27	Moeller et al.	
		5841432	A	1998-11-24	Carmel, Sharon et al.	
		5844575	A	1998-12-01	Reid, J. L.	
		5848217		1998-12-08	Tsukagoshi, I et al.	
		5867625	A	1999-02-02	McLaren, David	
		5887110	A	1999-03-23	Sakamoto, Hideki et al.	
		5892900	A	1999-04-06	Ginter et al., Karl	
		5903261		1999-05-11	Walsh, Bruce E., et al.	
		5907597		1999-05-25	Mark	
		5946446		1999-08-31	Yanagihara, Naofumi	
		5956729		1999-09-21	Goetz et al.	
		5959690		1999-09-28	Toebes VIII, John A., et al.	
		5999812	A	1999-12-07	Himsworth, Winston E.	
		6031622	A	2000-02-29	Ristow, Allan et al.	
		6038257	A	2000-03-14	Brusewitz, Harald et al.	
		6044469	A	2000-03-28	Horstmann, Cay S.	
		6046778	A	2000-04-04	Nonomura;, Tomoyuki et al.	
		6047100		2000-04-04	McLaren, David L.	
		6058240		2000-05-02	McLaren, David L.	
		6064794	A	2000-05-16	McLaren, David et al.	
		6065050		2000-05-16	DeMoney	
		6018611		2000-06-25	Nogami et al.	
		6079566		2000-06-27	Eleftheriadis et al.	
		6097877	A	2000-08-01	Katayama, Hironobu et al.	
		6141754	A	2000-10-31	Choy, David	
		6155840	A	2000-12-05	Sallette, Alfred V.	
		6169242		2001-01-02	Fay, Tudor C., et al.	
		6175921	B1	2001-01-16	Rosen, Sholom	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		6195388	B1	2001-02-27	Choi, Jae G., et al.	
		6204883	B1	2001-03-20	Tsukagoshi, I	
		6222981		2001-04-24	Rijckaert, Albert M.	
		6282653	B1	2001-08-28	Berstis, Viktors et al.	
		6289450	B1	2001-09-11	Pensak, David A., et al.	
		6292621		2001-09-18	Tanaka et al.	
		6308005	B1	2001-10-23	Ando, Hideo et al.	
		6330286	B1	2001-12-11	Lyons, P. W., et al.	
		6374144		2002-04-16	Viviani et al.	
		6389218		2002-05-14	Gordon et al.	
		6389473	B1	2002-05-14	Carmel, Sharon et al.	
		6395969		2002-05-28	Fuhrer	
		6397230	B1	2002-05-28	Carmel, Sharon et al.	
		6418270		2002-07-09	Steenhof, Frits A., et al.	
		6449719	B1	2002-09-10	Baker, Brian	
		6466671	B1	2002-10-15	Maillard et al., Michel	
		6466733		2002-10-15	Kim, Tae-eung	
		6510513	B1	2003-01-21	Danieli, Damon V.	
		6510554	B1	2003-01-21	Gordon, Donald F., et al.	
		6621979	B1	2003-09-16	Eerenberg, O. et al.	
		6658056	B1	2003-12-02	Duruöz, Cem I., et al.	
		6665835		2003-12-16	Gutfreund, Steven et al.	
		6671408		2003-12-30	Kaku, Junya	
		6697568		2004-02-24	Kaku, Junya	
		6725281		2004-04-20	Zintel el a.	
		6771703	B1	2004-08-03	Oguz, Seyfullah H., et al.	
		6807306	B1	2004-10-19	Girgensohn, Andreas et al.	
		6810031	B1	2004-10-26	Hegde, Manju et al.	
		6810389	B1	2004-10-26	Meyer, Marc A.	
		6819394	B1	2004-11-16	Nomura, Toshio et al.	
		6850252	B1	2005-02-01	Hoffberg, Steven M.	
		6856997	B2	2005-02-15	Lee et al.	
		6859496	B1	2005-02-22	Boroczky, Lilla et al.	
		6917652		2005-07-12	Lyu, Hwa Young	
		6944621	B1	2005-09-13	Collart, Todd R.	
		6944629	B1	2005-09-13	Shioi et ala.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		6956901	B2	2005-10-18	Boroczky, Lilla et al.	
		6965724		2005-11-15	Boccon-Gibod et al.	
		6965993	B2	2005-11-15	Baker, Brian	
		6985588	B1	2006-01-10	Glick, B. J., et al.	
		6988144		2006-01-17	Luken et al.	
		7007170	B2	2006-02-28	Morten, Glenn	
		7023924		2006-04-04	Keller et al.	
		7043473	B1	2006-05-09	Rassool, Reza et al.	
		7127155		2006-10-24	Ando et al.	
		7150045	B2	2006-12-12	Koelle, Katharina et al.	
		7151832	B1	2006-12-19	Fetkovich, John et al.	
		7151833	B2	2006-12-19	Candelore, Brant et al.	
		7165175	B1	2007-01-16	Kollmyer, Brad et al.	
		7185363	B1	2007-02-27	Narin, Attila et al.	
		7197234	B1	2007-03-27	Chatterton, Geoff	
		7209892		2007-04-24	Galuten et al.	
		7231132		2007-06-12	Davenport, William	
		7237061	B1	2007-06-26	Boic	
		7242772	B1	2007-07-10	Tehranchi, Babak	
		7328345	B2	2008-02-05	Morten, Glenn et al.	
		7330875		2008-02-12	Parasnis et al.	
		7340528	B2	2008-03-04	Noblecourt et al.	
		7349886	B2	2008-03-25	Morten, Glenn et al.	
		7356143	B2	2008-04-08	Morten, Glenn A.	
		7356245		2008-04-08	Belknap et al.	
		7366788		2008-04-29	Jones et al.	
		7376831	B2	2008-05-20	Kollmyer, Brad et al.	
		7406174	B2	2008-07-29	Palmer, Tomas E.	
		7421411	B2	2008-09-02	Kontio, Markku et al.	
		7457359	B2	2008-11-25	Mabey, D. L., et al.	
		7472280	B2	2008-12-30	Giobbi, John J.	
		7478325	B2	2009-01-13	Foehr, Oliver H.	
		7484103	B2	2009-01-27	Woo, Je-Hak et al.	
		7493018	B2	2009-02-17	Kim	
		7499938	B2	2009-03-03	Collart, Todd	
		7526450	B2	2009-04-28	Hughes, David A., et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		7594271	B2	2009-09-22	Zhuk, Oscar et al.	
		7610365	B1	2009-10-27	Kraft, Reiner et al.	
		7640435	B2	2009-12-29	Morten, Glenn A.	
		7689510	B2	2010-03-30	Lamkin, Allan B., et al.	
		7720352	B2	2010-05-18	Belknap, William R., et al.	
		7747853	B2	2010-06-29	Candelore et al.	
		7761892	B2	2010-07-20	Ellis, Michael D., et al.	
		7779097	B2	2010-08-17	Lamkin, Allan B., et al.	
		7817608	B2	2010-10-19	Rassool, Reza et al.	
		7869691	B2	2011-01-11	Kelly, Declan P., et al.	
		7962942	B1	2011-06-14	Craner, Michael L.	
		7974714	B2	2011-07-05	Hoffberg, Steven M.	
		7991156	B1	2011-08-02	Miller, Eric	
		8023562	B2	2011-09-20	Zheludkov, Alexander et al.	
		8046453	B2	2011-10-25	Olaiya, Oladipupo	
		8054880	B2	2011-11-08	Yu, Guoyao et al.	
		8065708	B1	2011-11-22	Smyth, Aidan J., et al.	
		8069260	B2	2011-11-29	Speicher, Ashley C., et al.	
		8201264	B2	2012-06-12	Grab, ERIC et al.	
		8225061	B2	2012-07-17	Greenebaum, Kenneth	
		8233768	B2	2012-07-31	Soroushian, K et al.	
		8249168	B2	2012-08-21	Graves, Hans W.	
		8261356	B2	2012-09-04	Choi, Bum S., et al.	
		8265168	B1	2012-09-11	Masterson, Anthony et al.	
		8270473	B2	2012-09-18	Chen, William et al.	
		8270819	B2	2012-09-18	Vannier, Eric	
		8289338	B2	2012-10-16	Priyadarshi, Shaiwal et al.	
		8291460	B1	2012-10-16	Peacock, Gavin	
		8296434	B1	2012-10-23	Miller, Kevin C., et al.	
		8311115	B2	2012-11-13	Gu, Chuang et al.	
		8321556	B1	2012-11-27	Chatterjee, Manjirnath et al.	
		8386621	B2	2013-02-26	Park, Anthony N.	
		8401900	B2	2013-03-19	Cansler, James L., et al.	
		8412841	B1	2013-04-02	Swaminathan et al.	
		8452110	B2	2013-05-28	Shoham, Tamar et al.	
		8456380	B2	2013-06-04	Pagan, William G.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		8472792	B2	2013-06-25	Butt, Abou U.	
		8472792		2013-06-25	Ahsan Butt et al.	
		8473630	B1	2013-06-25	Galligan et al.	
		8510303		2013-08-13	Soroushian, Kourosh et al.	
		8510404	B2	2013-08-13	Carmel, Sharon et al.	
		8515265	B2	2013-08-20	Kwon, O-Hoon et al.	
		8516529	B2	2013-08-20	Lajoie, Michael L., et al.	
		8606069	B2	2013-12-10	Okubo, Masafumi et al.	
		8640166	B1	2014-01-28	Craner et al.	
		8681866	B1	2014-03-25	Jia, Wei	
		8726264	B1	2014-05-13	Allen, Nicholas et al.	
		8774609	B2	2014-07-08	Drake, Edward C., et al.	
		8781122		2014-07-15	Chan, Francis Y., et al.	
		RE45052		2014-07-29	Li, Adam	
		8805109	B2	2014-08-12	Shoham, Tamar et al.	
		8806188		2014-08-12	Braness, Jason et al.	
		8843586	B2	2014-09-23	Pantos, Roger et al.	
		8908984	B2	2014-12-09	Shoham, Tamar et al.	
		8909922	B2	2014-12-09	Kiefer, Michael G., et al.	
		8914534	B2	2014-12-16	Braness, Jason et al.	
		8914836	B2	2014-12-16	Shivadas, Abhishek et al.	
		8918636	B2	2014-12-23	Kiefer, MIchael	
		8918908		2014-12-23	Ziskind, Ben et al.	
		8997161		2015-03-31	Priyadarshi, Shaiwal et al.	
		8997254		2015-03-31	Amidei, William et al.	
		9014471	B2	2015-04-21	Shoham, Tamar et al.	
		9025659	B2	2015-05-05	Soroushian, Kourosh et al.	
		9042670	B2	2015-05-26	Carmel et al.	
		9094737	B2	2015-07-28	Shivadas, Abhishek et al.	
		9124773	B2	2015-09-01	Chan, Francis Y., et al.	
		9184920		2015-11-10	Grab, Eric W., et al.	
		9191457		2015-11-17	Van der Schaar, Auke S.	
		9197685		2015-11-24	Soroushian, Kourosh et al.	
		9210481		2015-12-08	Braness, Jason et al.	
		9247311		2016-01-26	Kiefer, Michael G.	
		9247312		2016-01-26	Braness, Jason et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		9247317		2016-01-26	Shivadas, Abhishek et al.	
		9264475		2016-02-16	Shivadas et al., Abhishek	
		9313510		2016-04-12	Shivadas et al., Abhishek	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code [1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		20010030710	A1	2001-10-18	Werner	
		20010036355	A1	2001-11-01	Kelly, Declan P., et al.	
		20010046299	A1	2001-11-29	Wasilewski et al.	
		20010053222	A1	2001-12-20	Wakao, Satoru e.	
		20020026560	A1	2002-02-28	Jordan, Kevin M., et al.	
		20020034252	A1	2002-03-21	Owen et al.	
		20020051494	A1	2002-05-02	Yamaguchi et al.	
		20020057898	A1	2002-05-16	Normile, James O.	
		20020062313		2002-05-23	Lee et al.	
		20020076112	A1	2002-06-20	Devara, Kavitha V.	
		20020087569	A1	2002-07-04	Fischer, Uwe et al.	
		20020091665		2002-07-11	Van Beek et al., Petrus	
		20020093571	A1	2002-07-18	Hyodo, Manabu	
		20020110193	A1	2002-08-15	Yoo et al.	
		20020116481	A1	2002-08-22	Lee, Raymond W.	
		20020118953	A1	2002-08-29	Kim, Jae-Hyun	
		20020120934	A1	2002-08-29	Abrahams et al.	
		20020136298	A1	2002-09-26	Anantharamu et al.	
		20020143413		2002-10-03	Fay, Todor J., et al.	
		20020143547		2002-10-03	Fay, Todor J., et al.	
		20020147980	A1	2002-10-10	Satoda	
		20020159598	A1	2002-10-31	Rubinstein et al., Itzhak	
		20020161462	A1	2002-10-31	Fay, Todor J.	
		20020161462		2002-10-31	Fay, Todor J., et al.	
		20020180929		2002-12-05	Schwartz et al.	
		20020180929	A1	2002-12-05	Tseng, Scheffer et al.	
		20020184159		2002-12-05	Tayadon et al.	
		20020191112	A1	2002-12-19	Akiyoshi, Kozo et al.	
		20020191959	A1	2002-12-19	Lin, Shu et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20020191960		2002-12-19	Fujinami et al.	
		20030001964	A1	2003-01-02	Masukura, Koichi et al.	
		20030002578	A1	2003-01-02	Tsukagoshi, Ikuo et al.	
		20030005442	A1	2003-01-02	Brodersen et al.	
		20030021296	A1	2003-01-30	Wee, Susie J., et al.	
		20030031178	A1	2003-02-13	Haeri, Ali e.	
		20030035488	A1	2003-02-20	Barrau, Eric	
		20030035545	A1	2003-02-20	Jiang, S.	
		20030035546	A1	2003-02-20	Jiang, S. S., et al.	
		20030041257	A1	2003-02-27	Wee, Susie J.	
		20030061305	A1	2003-03-27	Copley, Devon et al.	
		20030061369	A1	2003-03-27	Aksu, Emre et al.	
		20030065777	A1	2003-04-03	Mattila, Marko et al.	
		20030078930	A1	2003-04-24	Surcouf et al.	
		20030093799	A1	2003-05-15	Kauffman et al., Marc	
		20030123855	A1	2003-07-03	Okada, Tomoyuki et al.	
		20030128296	A1	2003-07-10	Lee, Chulhee	
		20030133506	A	2003-07-17	Haneda, T.	
		20030152370	A1	2003-08-14	Otomo, Hitoshi et al.	
		20030163824	A1	2003-08-28	Gordon, Donald et al.	
		20030165328		2003-09-04	Grecia, William	
		20030174844	A1	2003-09-18	Candelore, Brant L.	
		20030185302		2003-10-02	Abrams, Thomas A.	
		20030185542	A1	2003-10-02	McVeigh et al., Jeffrey	
		20030206558		2003-11-06	Parkkinen et al.	
		20030216922	A1	2003-11-20	Gonzales, Cesar et al.	
		20030229900	A1	2003-12-11	Reisman, Richard	
		20030231863	A1	2003-12-18	Eerenberg, O. et al.	
		20030231867	A1	2003-12-18	Gates, M. e.	
		20030233464	A1	2003-12-18	Walpole et al.	
		20030236836	A1	2003-12-25	Borthwick, Ernest M.	
		20030236907	A1	2003-12-25	Stewart, James et al.	
		20040006701		2004-01-08	Kresina, Roman	
		20040021684		2004-02-05	Millner	
		20040024688	A1	2004-02-05	Bi, Depeng et al.	
		20040025180	A1	2004-02-05	Begeja, Lee et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20040031058	A1	2004-02-12	Reisman, Richard	
		20040039916	A1	2004-02-26	Aldis, David et al.	
		20040047614		2004-03-11	Green	
		20040052501		2004-03-18	Tam, Eddy C.	
		20040071453	A1	2004-04-15	Valderas, Harold M.	
		20040081333	A1	2004-04-29	Grab, E. W.	
		20040081434	A1	2004-04-29	Jung, Kil-Soo et al.	
		20040093618	A1	2004-05-13	Baldwin, James et al.	
		20040105549	A1	2004-06-03	Suzuki, K et al.	
		20040114687		2004-06-17	Ferris et al.	
		20040117347	A1	2004-06-17	Seo et al.	
		20040136698	A1	2004-07-15	Mock, Wayne E.	
		20040139335	A1	2004-07-15	Diamand, Joseph et al.	
		20040143760		2004-07-22	Alkove et al.	
		20040146276		2004-07-29	Ogawa, Hideaki	
		20040158878	A1	2004-08-12	Ratnakar, Viresh et al.	
		20040184534	A1	2004-09-23	Wang, Albert S.	
		20040202320	A1	2004-10-14	Amini, Lisa D., et al.	
		20040217971	A1	2004-11-04	Kim, H	
		20040255115	A1	2004-12-16	DeMello, Marcoet al.	
		20040255236	A1	2004-12-16	Collart, Todd R.	
		20050015797	A1	2005-01-20	Noblecourt et al.	
		20050038826	A1	2005-02-17	Bae, Dae-gyu et al.	
		20050055399		2005-03-10	Savchuk	
		20050071280	A1	2005-03-31	Irwin et al., Scott A.	
		20050108320	A1	2005-05-19	Lord, Robert D.	
		20050114896	A1	2005-05-26	Hug, Joshua D.	
		20050149450	A1	2005-07-07	Stefik, Mark J., et al.	
		20050180641	A1	2005-08-18	Clark	
		20050183120	A1	2005-08-18	Jain, Saurabh et al.	
		20050193070	A1	2005-09-01	Brown, Michael et al.	
		20050193322	A1	2005-09-01	Lamkin, Allan B., et al.	
		20050196147	A1	2005-09-08	Seo, Kang S., et al.	
		20050204289	A1	2005-09-15	Mohammed et al.	
		20050207442	A1	2005-09-22	Zoest et al.	
		20050207578	A1	2005-09-22	Matsuyama et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20050254508	A1	2005-11-17	Aksu, Emre B., et al.	
		20050273695	A1	2005-12-08	Schnurr, Jeffrey R.	
		20050275656	A1	2005-12-15	Corbin, Toby et al.	
		20060026294	A1	2006-02-02	Virdi, Gurpratap et al.	
		20060036549	A1	2006-02-16	Wu, Bo	
		20060037057	A1	2006-02-16	Xu, Shugong	
		20060052095	A1	2006-03-09	Vazvan, Behruz	
		20060053080	A1	2006-03-09	Edmonson et al., Brad	
		20060064605	A1	2006-03-23	Giobbi, John J.	
		20060078301	A1	2006-04-13	Ikeda, Wataru et al.	
		20060093320	A1	2006-05-04	Hallberg, Bryan et al.	
		2006120378	A1	2006-06-08	Usuki, Izumi e.	
		20060129909	A1	2006-06-15	Butt, Abou U., et al.	
		20060168639	A1	2006-07-27	Gan, Liang et al.	
		20060173887	A1	2006-08-03	Breitfeld, Volkmar et al.	
		20060181965	A1	2006-08-17	Collart, Todd R.	
		20060235880	A1	2006-10-19	Qian, R.	
		20060245727	A1	2006-11-02	Nakano, Hiroshi et al.	
		20060259588	A1	2006-11-16	Lerman, David et al.	
		20060263056	A1	2006-11-23	Lin, Shu et al.	
		20060267986	A1	2006-11-30	Bae, Soo-Kang	
		20060274835		2006-12-07	Hamilton et al.	
		20060294164	A1	2006-12-28	Armangau et al.	
		20070005333	A1	2007-01-04	Setiohardjo et al.	
		20070031110	A1	2007-02-08	Rijckaert, Albert M.	
		20070044010	A1	2007-02-22	Sull, Sanghoon et al.,	
		20070047901	A1	2007-03-01	Ando, Hideo et al.	
		20070053513	A1	2007-03-08	Hoffberg, Steven M.	
		20070058928	A1	2007-03-15	Naito, Hitoshi et al.	
		20070083617	A1	2007-04-12	Chakrabarti, A et al.	
		20070086528	A1	2007-04-19	Mauchly, J. W., et al.	
		20070100757	A1	2007-05-03	Rhoads, Geoffrey B.	
		20070133603	A1	2007-06-14	Weaver, Timothy H.	
		20070136817	A1	2007-06-14	Nguyen, Binh	
		20070140647	A1	2007-06-21	Kusunoki et al.	
		20070154165	A1	2007-07-05	Hemmeryckx-	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

					Deleersnijder et al.	
		20070168541	A1	2007-07-19	Gupta, Manish et al.	
		20070168542	A1	2007-07-19	Gupta, Manish et al.	
		20070178933	A1	2007-08-02	Nelson, Joakim	
		20070180125	A1	2007-08-02	Knowles, Michael et al.	
		20070185982	A1	2007-08-09	Nakanowatari et al.	
		20070192810	A1	2007-08-16	Pritchett et al.	
		20070217339	A1	2007-09-20	Zhao, Yun	
		20070217759	A1	2007-09-20	Dodd, Michael D.	
		20070234391	A1	2007-10-04	Hunter et al.	
		20070239839	A1	2007-10-11	Buday, Michael et al.	
		20070255940	A1	2007-11-01	Ueno, T.	
		20070271317	A1	2007-11-22	Carmel et al.	
		20070271385	A1	2007-11-22	Davis, Andrew T., et al.	
		20070274679	A1	2007-11-29	Yahata, Hiroshi et al.	
		20070277219	A1	2007-11-29	Toebes, John et al.	
		20070277234	A1	2007-11-29	Bessonov et al.	
		20070280298	A1	2007-12-06	Hearn, John P., et al.	
		20070288745	A1	2007-12-13	Kwan, Nang K.	
		20070292107	A1	2007-12-20	Yahata, Hiroshi et al.	
		20070297422	A1	2007-12-27	Matsuo, Hideki et al.	
		20080005175	A1	2008-01-03	Bourke, A. et al.	
		20080008455	A1	2008-01-10	De Lange et al.	
		20080043832	A1	2008-02-21	Barkley, Warren et al.	
		20080066099	A1	2008-03-13	Brodersen et al.	
		20080066181	A1	2008-03-13	Haveson, Ryan et al.	
		20080086456	A1	2008-04-10	Rasanen, K. et al.	
		20080086747	A1	2008-04-10	Rasanen, Kirsten et al.	
		20080101466	A1	2008-05-01	Swenson, Erik R., et al.	
		20080104633	A1	2008-05-01	Noblecourt et al.	
		20080120330	A1	2008-05-22	Reed, O. et al.	
		20080120342	A1	2008-05-22	Reed, Ogden C., et al.	
		20080120389	A1	2008-05-22	Bassali, Harpal et al.	
		20080126248	A1	2008-05-29	Lee, Seung-Jae et al.	
		20080137541	A1	2008-06-12	Agarwal, Kaitki e.	
		20080137736	A1	2008-06-12	Richardson et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20080151817	A1	2008-06-26	Fitchett, Jeffrey W.	
		20080172441	A1	2008-07-17	Speicher, Ashley et al.	
		20080187283	A1	2008-08-07	Takahashi, Eduardo S.	
		20080192818	A1	2008-08-14	DiPietro, Donald et al.	
		20080195664	A1	2008-08-14	Maharajh, Kavi et al.	
		20080195744	A1	2008-08-14	Bowra, Todd et al.	
		20080205860	A1	2008-08-28	Holtman, Koen J.	
		20080240144	A1	2008-10-02	Kruse, David et al.	
		20080256105	A1	2008-10-16	Nogawa, Hiroshi et al.	
		20080263354	A1	2008-10-23	Beuque	
		20080279535	A1	2008-11-13	Haque et al.	
		20080298358	A1	2008-12-04	John, Sunil S., et al.	
		20080310454	A1	2008-12-18	Bellwood et al.	
		20080310496	A1	2008-12-18	Fang, Nicholas J.	
		20090031220	A1	2009-01-29	Tranchant, Julien et al.	
		20090037959	A1	2009-02-05	Suh, Jong Y., et al.	
		20090048852	A1	2009-02-19	Burns, Gregory et al.	
		20090055546	A1	2009-02-26	Jung, Edward K., et al.	
		20090060452	A1	2009-03-05	Chaudhri, Imran A.	
		20090066839	A1	2009-03-12	Jung, Kil-Soo et al.	
		20090097644	A1	2009-04-16	Haruki, K.	
		20090132599	A1	2009-05-21	Soroushian, K. et al.	
		20090132721	A1	2009-05-21	Soroushian et al.	
		20090132824	A1	2009-05-21	Terada, Masayuki et al.	
		20090136216	A1	2009-05-28	Soroushian	
		20090150557	A1	2009-06-11	Wormley et al.	
		20090168795	A1	2009-07-02	Segel et al.	
		20090169181	A1	2009-07-02	Priyadarshi, S. et al.	
		20090172201	A1	2009-07-02	Carmel et al.	
		20090178090	A1	2009-07-09	Oztaskent, Ant	
		20090196139	A1	2009-08-06	Bates, Allen K., et al.	
		20090201988	A1	2009-08-13	Gazier, Michael et al.	
		20090217317	A1	2009-08-27	White et al.	
		20090226148	A1	2009-09-10	Nesvadba, Jan et al.	
		20090228395	A1	2009-09-10	Wegner, Susan et al.	
		20090290706	A1	2009-11-26	Amini, Lisa D., et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20090290708	A1	2009-11-26	Schneider et al.	
		20090293116	A1	2009-11-26	DeMello, Marco A.	
		20090303241	A1	2009-12-10	Priyadarshi, S et al.	
		20090307258	A1	2009-12-10	Priyadarshi et al.	
		20090307258	A1	2009-12-10	Priyadarshi, S et al.	
		20090307267	A1	2009-12-10	Chen, Danny Y., et al.	
		20090310933	A1	2009-12-17	Lee, Victor S.	
		20090313544	A1	2009-12-17	Wood, Policarpo et al.	
		20090313564	A1	2009-12-17	Rottler, Benjamin et al.	
		20090316783	A1	2009-12-24	Au, Oscar C., et al.	
		20090328124	A1	2009-12-31	Khouzam, Gilles et al.	
		20090328228	A1	2009-12-31	Schnell, Patrik	
		20100040351	A1	2010-02-18	Toma, Tadamasa et al.	
		20100057928	A1	2010-03-04	Kapoor, Abhinav et al	
		20100058405	A1	2010-03-04	Ramakrishnan et al.	
		20100074324	A1	2010-03-25	Qian, Zhebin et al.	
		20100074333	A1	2010-03-25	Au, Oscar C., et al.	
		20100083322	A1	2010-04-01	Rouse, Alan	
		20100094969	A1	2010-04-15	Zuckerman, Gal et al.	
		20100095121	A1	2010-04-15	Shetty, Pritham et al.	
		20100106968	A1	2010-04-29	Mori et al.	
		20100107260	A1	2010-04-29	Orrell, Martin et al.	
		20100111192	A1	2010-05-06	Graves, Hans W.	
		20100138903	A1	2010-06-03	Medvinsky, Alexander	
		20100142917	A1	2010-06-10	Isaji, Yutaka	
		20100158109	A1	2010-06-24	Dahlby, Joshua et al.	
		20100161825	A1	2010-06-24	Ronca, David R., et al.	
		20100166060	A1	2010-07-01	Ezure, Tomohiro et al.	
		20100186092	A1	2010-07-22	Takechi, Hideaki et al.	
		20100189183	A1	2010-07-29	Gu, Chuang et al.	
		20100189183	A1	2010-07-29	Gu, C. et al.	
		20100228795	A1	2010-09-09	Hahn, Judah G.	
		20100235472	A1	2010-09-16	Sood, Vishal et al.	
		20100250532	A1	2010-09-30	Soroushian, K. et al.	
		20100290761	A1	2010-11-18	Drake, Edward et al.	
		20100299522	A1	2010-11-25	Khambete et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20100306249	A1	2010-12-02	Hill, James et al.	
		20100313225	A1	2010-12-09	Cholas, Chris et al.	
		20100313226	A1	2010-12-09	Cholas, Chris et al.	
		20100319014	A1	2010-12-16	Lockett, David et al.	
		20100319017	A1	2010-12-16	Cook, Michael	
		20100332595	A1	2010-12-30	Fullagar, David et al.	
		20110002381	A1	2011-01-06	Yang, Kyeong H., et al.	
		20110016225	A1	2011-01-20	Park, Anthony N.	
		20110047209	A1	2011-02-24	Lindholm, Fredrik et al.	
		20110055585	A1	2011-03-03	Lee, Kok-Wah	
		20110060808	A1	2011-03-10	Martin, John J., et al.	
		20110066673	A1	2011-03-17	Outlaw, B.	
		20110067057	A1	2011-03-17	Karaoguz et al.	
		20110078440	A1	2011-03-31	Feng, Chen H., et al.	
		20110080940	A1	2011-04-07	Bocharov, John A.	
		20110082924	A1	2011-04-07	Gopalakrishnan	
		20110096828	A1	2011-04-28	Chen, Ying et al.	
		20110107379	A1	2011-05-05	Lajoie, Michael et al.	
		20110116772	A1	2011-05-19	Kwon, O-Hoon et al.	
		20110126191	A1	2011-05-26	Hughes, Richard et al.	
		20110129011	A1	2011-06-02	Cilli, Bruce R., et al.	
		20110135090	A1	2011-06-09	Chan, Francis Yee-dug	
		20110138018	A1	2011-06-09	Raveendran et al.	
		20110142415	A1	2011-06-16	Rhyu, Sung-Ryeul	
		20110145726	A1	2011-06-16	Wei, Eugene C., et al.	
		20110149753	A1	2011-06-23	Bapst, Mark et al.	
		20110150100	A1	2011-06-23	Abadir, Essam	
		20110153785	A1	2011-06-23	Minborg, Per-Åke et al.	
		20110153835	A1	2011-06-23	Rimac, Ivica et al.	
		20110184738	A1	2011-07-28	Kalisky, Dror et al.	
		20110191439	A1	2011-08-04	Dazzi, Alain et al.	
		20110191803	A1	2011-08-04	Baldwin, James et al.	
		20110197237	A1	2011-08-11	Turner, Steven E.	
		20110213827	A1	2011-09-01	Kaspar, Dominik et al.	
		20110222786	A1	2011-09-15	Carmel, Sharon et al.	
		20110225302	A1	2011-09-15	Park, Anthony N., et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20110225315	A1	2011-09-15	Wexler, Yosef et al.	
		20110225417	A1	2011-09-15	Maharajh, Kavi et al.	
		20110239078	A1	2011-09-29	Luby, Michael G., et al.	
		20110246657	A1	2011-10-06	Glow, Andy	
		20110246659	A1	2011-10-06	Bouazizi, Imed	
		20110252118	A1	2011-10-13	Pantos, Roger et al.	
		20110264530	A1	2011-10-27	Santangelo et al.	
		20110268178	A1	2011-11-03	Park, Anthony N.	
		20110276695	A1	2011-11-10	Maldaner et al.	
		20110291723	A1	2011-12-01	Hashimoto	
		2011291723	A1	2011-12-01	Hashimoto, Kiyoshi	
		20110302319	A1	2011-12-08	Ha, Ho-jin et al.	
		20110305273	A1	2011-12-15	He, Yaming et al.	
		20110314176	A1	2011-12-22	Frojdh, Per et al.	
		20110314500	A1	2011-12-22	Gordon, Donald	
		20120005368	A1	2012-01-05	Knittle et al.	
		20120023251	A1	2012-01-26	Pyle, Harry et al.	
		20120036365	A1	2012-02-09	Kyslov, Fedir Y., et al.	
		20120036544	A1	2012-02-09	Chen, Ying et al.	
		20120093214	A1	2012-04-19	Urbach, Julian	
		20120124191	A1	2012-05-17	Lyon, Barrett G.	
		20120137336	A1	2012-05-31	Applegate, David et al.	
		20120144117	A1	2012-06-07	Weare et al.	
		20120144445	A1	2012-06-07	Bonta, Jeffrey D., et al.	
		20120166633	A1	2012-06-28	Baumback, Mark et al.	
		20120170642	A1	2012-07-05	Braness, J et al.	
		20120170643	A1	2012-07-05	Soroushian, K et al.	
		20120170906	A1	2012-07-05	Soroushian, K et al.	
		20120170915	A1	2012-07-05	Braness, J et al.	
		20120173751	A1	2012-07-05	Braness, J et al.	
		20120177101	A1	2012-07-12	van der Schaar, S	
		20120179834	A1	2012-07-12	van der Schaar, S A.	
		20120201475	A1	2012-08-09	Carmel, Sharon et al.	
		20120201476	A1	2012-08-09	Carmel, Sharon et al.	
		20120233345	A1	2012-09-13	Hannuksela, Miska M.	
		20120240176	A1	2012-09-20	Ma, Kevin J.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20120254455	A1	2012-10-04	Adimatyam et al.	
		20120260277	A1	2012-10-11	Kosciewicz, Pawel	
		20120263434	A1	2012-10-18	Wainner, Warren et al.	
		20120265562	A1	2012-10-18	Daouk, Carine H., et al.	
		20120278496	A1	2012-11-01	Hsu, James K.	
		20120289147	A1	2012-11-15	Raleigh, Gregory et al.	
		20120294355	A1	2012-11-22	Holcomb et al.	
		20120297039	A1	2012-11-22	Acuna, Jorge D., et al.	
		20120307883	A1	2012-12-06	Graves, Hans W.	
		20120311094	A1	2012-12-06	Biderman, David et al.	
		20120314778	A1	2012-12-13	Salustri et al.	
		20130007223	A1	2013-01-03	Luby, Michael G., et al.	
		20130013730	A1	2013-01-10	Li, Ming et al.	
		20130019107		2013-01-17	Grab, E. et al.	
		20130019273	A1	2013-01-17	Ma, Kevin J., et al.	
		20130041808	A1	2013-02-14	Pham, Nathalie et al.	
		20130044821	A1	2013-02-21	Braness, Jason et al.	
		20130046849	A1	2013-02-21	Wolf, Ethan et al.	
		20130046902	A1	2013-02-21	Villegas Nuñez et al.	
		20130051554	A1	2013-02-28	Braness, Jason e.	
		20130054958	A1	2013-02-28	Braness, Jason et al.	
		20130055084	A1	2013-02-28	Soroushian et al.	
		20130058480	A1	2013-03-07	Ziskind, Ben et al.	
		20130061040	A1	2013-03-07	Kiefer, Michael et al.	
		20130061045	A1	2013-03-07	Kiefer, Michael et al.	
		20130061045	A1	2013-03-07	Kiefer, Michael et al.	
		20130064466	A1	2013-03-14	Carmel, Sharon et al.	
		20130094565	A1	2013-04-18	Yang, Lei et al.	
		20130097309	A1	2013-04-18	Ma, Kevin J., et al.	
		20130114944	A1	2013-05-09	Soroushian et al.	
		20130128962	A1	2013-05-23	Rajagopalan et al.	
		20130152767	A1	2013-06-20	Katz, Itamar et al.	
		20130166765	A1	2013-06-27	Kaufman, Matthew	
		20130166906	A1	2013-06-27	Swaminathan et al.	
		20130170764	A1	2013-07-04	Carmel, Sharon et al.	
		20130173513	A1	2013-07-04	Chu, David et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20130179199	A1	2013-07-11	Ziskind, Ben et al.	
		20130179992	A1	2013-07-11	Ziskind, Ben et al.	
		20130182952	A1	2013-07-18	Carmel, Sharon et al.	
		20130196292	A1	2013-08-01	Brennen, Forrest et al.	
		20130212228	A1	2013-08-15	Butler, Robert J.	
		20130223812	A1	2013-08-29	Rossi, Antonio	
		20130226578	A1	2013-08-29	Bolton, Jeff M., et al.	
		20130226635	A1	2013-08-29	Fisher, Michelle	
		20130311670	A1	2013-11-21	Tarbox, Brian J., et al.	
		20130329781	A1	2013-12-12	Su, Yeping et al.	
		20140003516	A1	2014-01-02	Soroushian, Kourosh	
		20140037620	A1	2014-02-06	Ferree, Sean M., et al.	
		20140052823	A1	2014-02-20	Gavade, Sameer et al.	
		20140059156	A1	2014-02-27	Freeman, II et al.	
		20140101722	A1	2014-04-10	Moore, Jonathan	
		20140119432	A1	2014-05-01	Wang et al.	
		20140140396	A1	2014-05-22	Wang, Zhou et al.	
		20140140417	A1	2014-05-22	Shaffer, Gary K., et al.	
		20140143301	A1	2014-05-22	Watson, Mark et al.	
		20140143431	A1	2014-05-22	Watson, Mark et al.	
		20140143440	A1	2014-05-22	Ramamurthy et al.	
		20140177734	A1	2014-06-26	Carmel, Sharon et al.	
		20140189065	A1	2014-07-03	van der Schaar et al.	
		20140201382	A1	2014-07-17	Shivadas et al.	
		20140211840	A1	2014-07-31	Butt, Abou U., et al.	
		20140211859	A1	2014-07-31	Carmel, Sharon et al.	
		20140241420	A1	2014-08-28	Orton-jay, Sam et al.	
		20140241421	A1	2014-08-28	Orton-jay, Sam et al.	
		20140250473	A1	2014-09-04	Braness, Jason et al.	
		20140258714	A1	2014-09-11	Grab, Eric W.	
		20140269927	A1	2014-09-18	Naletov, Ivan V., et al.	
		20140269936	A1	2014-09-18	Shivadas et al.	
		20140280763	A1	2014-09-18	Grab, Eric W., et al.	
		20140297804	A1	2014-10-02	Shivadas et al.	
		20140297881	A1	2014-10-02	Shivadas et al.	
		20140359678	A1	2014-12-04	Shivadas et al.	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20140359679	A1	2014-12-04	Shivadas et al.	
		20140359680	A1	2014-12-04	Shivadas et al.	
		2014355668	A1	2014-12-04	Shoham, Tamar et al.	
		20140376720	A1	2014-12-25	Chan, Francis Y., et al.	
		20150006662	A1	2015-01-01	Braness, Jason A.	
		20150026677	A1	2015-01-22	Stevens, Jerry et al.	
		2015049957	A1	2015-02-19	Shoham, Tamar et al.	
		20150063693	A1	2015-03-05	Carmel et al.	
		20150104153	A1	2015-04-16	Braness, Jason et al.	
		20150117836	A1	2015-04-30	Amidei, William et al.	
		20150117837	A1	2015-04-30	Amidei, William et al.	
		20150139419	A1	2015-05-21	Kiefer, Michael et al.	
		20150188758	A1	2015-07-02	Amidei, William et al.	
		20150188842	A1	2015-07-02	Amidei, William et al.	
		20150188921	A1	2015-07-02	Amidei, William et al.	
		20150189017	A1	2015-07-02	Amidei, William et al.	
		20150189373	A1	2015-07-02	Amidei, William et al.	
		20150334435	A1	2015-11-19	Shivadas et al.	
		20150373421	A1	2015-12-24	Chan, Francis Y.	
		20160070890	A1	2016-03-10	Grab et al., Eric W.	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Page, Column, Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2002013664	KR			Kim et al.		
		1995015660	WO	A1	1995-06-08	Birch et al.		
		08046902	JP	A	1996-02-16	Uchiumi et al.		
		8111842	JP	A	1996-04-30	Gaiguchi et al.		
		1996013121	WO		1996-05-02	McLaren, D.		
		1996163488	JP		1996-06-21	Hiroshi et al.		
		1996287613	JP	A	1996-11-01	Katayama		

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		757484	EP	A2	1997-02-05	Tsukagoshi et al.		
		09037225	JP	A	1997-02-07	Tsushima et al.		
		813167	EP	A2	1997-12-17	Ristow, Allan et al.		
		1169229	CN		1997-12-31	McLaren et al.		
		1997031445	WO	A3	1998-04-02	Carmel et al.		
		1999010836	WO	A1	1999-03-04	Daboosh, Tzur et al.		
		11164307	JP	A	1999-06-18	Sugiyama enji et al.		
		100221423	KR	B1	1999-06-28	Mishina Masamichu		
		1221284	CN	A	1999-06-30	Kim, J.		
		0936812	EP	A1	1999-08-18	Maillard et al.		
		11275576	JP	A	1999-10-08	Bun, Chun et al.		
		11328929	JP	A	1999-11-30	Ando Hideo et al.		
		1999065239	WO	A2	1999-12-16	Eerenberg nno et al.		
		1056273	EP	A2	2000-11-29	Cornelio ichael et al.		
		02001043668	JP	A	2001-02-16	Ishioka, Takayuki		
		2001031497	WO	A1	2001-05-03	Gonzalez, Ruben		
		2001050732	WO	A2	2001-07-12	Pintz, Sandro et al.		
		2001065762	WO	A2	2001-09-07	Platt, David et al.		
		2001346165	JP	A	2001-12-14	Okada et al.		
		2002001880	WO	A1	2002-01-03	Strothman et al.		
		2002008948	WO	A2	2002-01-31	Sull et al.		
		2002035832	WO	A2	2002-05-02	Davenport, William		
		2002037210	WO	A2	2002-05-10	Clark et al.		
		2002170363	JP	A	2002-06-14	Hideo, A. et al.		
		2002518898	JP	A	2002-06-25	Eerenberg et al.		
		2002054196	WO	A2	2002-07-11	Durand, Alain et al.		
		2002218384	JP	A	2002-08-02	Hyodo, Manabu		
		1020020064888	KR	A	2002-08-10	Gonzalez, Ruben		
		2003250113	JP	A	2003-09-05	Ogawa, Hideaki		
		2004013823	JP	A	2004-01-15	Yokoyama, Toru		
		1420580	EP	A1	2004-05-19	Schiller et al.		
		2004515941	JP	A	2004-05-27	Daven, Pet Will		
		2004172830	JP	A	2004-06-17	Takishima et al.		
		2004054247	WO	A1	2004-06-24	Gan, Liang et al.		
		2004187161	JP	A	2004-07-02	Hayashi et al.		
		2004234128	JP	A	2004-08-19	Fujisawa et al.		

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.G./

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

Receipt date: 11/14/2016

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		2004097811	WO	A1	2004-11-11	Kim, Byung J., et al.		
		2004102571	WO	A1	2004-11-25	Rijckaert, Albert		
		2005027153	JP		2005-01-27	Kunieda, T et al.		
		2005080204	JP	A	2005-03-24	Watanabe, Junya		
		1553779	EP	A1	2005-07-13	Huetter, I. et al.		
		1723696	CN		2006-01-18	Shi, K		
		2006018843	WO	A2	2006-02-23	Carmel et al.		
		1657835	EP	A1	2006-05-17	Kisoda, Akira e.		

EXAMINER SIGNATURE

Examiner Signature	/Abiy Getachew/ (11/27/2016)	Date Considered	11/27/2016

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14970412	KIEFER ET AL.
	Examiner	Art Unit
	ABIY GETACHEW	2434

CPC- SEARCHED

Symbol	Date	Examiner
H04L2209/603 OR H04L63/0428 OR H04L9/0819 OR H04L9/32 OR H04L65/601 OR G06F17/30861 OR G06F3/0482 OR G06F3/0484 OR G06F3/04842 OR G06Q20/18 OR G06Q30/0255 OR G11B27/02 OR G11B27/28	11/27/2016	A.G.

CPC COMBINATION SETS - SEARCHED

Symbol	Date	Examiner

US CLASSIFICATION SEARCHED

Class	Subclass	Date	Examiner
713	160	11/27/2016	A.G.

SEARCH NOTES

Search Notes	Date	Examiner
Class/subclass, Text search and google search.	11/27/2016	A.G.
Inventor name search	11/27/2016	A.G.

INTERFERENCE SEARCH

US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	((H04L2209/603 OR H04L63/0428 OR H04L9/0819 OR H04L9/32 OR H04L65/601 OR G06F17/30861 OR G06F3/0482 OR G06F3/0484 OR G06F3/04842 OR G06Q20/18 OR G06Q30/0255 OR G11B27/02 OR G11B27/28).CPC.) and ((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key).ab.)).clm.	11/27/2016	A.G.

/ABIY GETACHEW/ Examiner, Art Unit 2434	

INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
	((((access$3 play$4 play$1back playback) with (Common "same" identical$5) with Key) and((access$4 play$3 play$1back playback) with (common "same" identical$5) with key) and ((access$ play$1back playback) with (common "same" identical$5) with key)))and (bitrate with stream$4).clm.	11/27/2016	A.G.
		11/27/2016	A.G.

/ABIY GETACHEW/ Examiner, Art Unit 2434	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14970412	KIEFER ET AL.
	Examiner	**Art Unit**
	ABIY GETACHEW	2434

CPC						
Symbol					**Type**	**Version**
H04L		63	/	0428	F	2013-01-01
H04L		9	/	0819	I	2013-01-01
H04L		2209	/	603	A	2013-01-01
H04L		9	/	32	I	2013-01-01
H04N		21	/	64715	I	2013-01-01
H04N		21	/	2347	I	2013-01-01
H04N		21	/	2541	I	2013-01-01
H04N		21	/	4408	I	2013-01-01
H04N		21	/	4627	I	2013-01-01
H04N		21	/	6334	I	2013-01-01
			/			
			/			
			/			
			/			
			/			

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

/ABIY GETACHEW/ Examiner.Art Unit 2434	11/27/2016	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	15	
/KAMBIZ ZAND/ Supervisory Patent Examiner.Art Unit 2434	11/27/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14970412	KIEFER ET AL.
	Examiner	**Art Unit**
	ABIY GETACHEW	2434

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION											
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED						
713	160	H	0	6	F	9 / 00							
CROSS REFERENCE(S)													
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)												

/ABIY GETACHEW/ Examiner.Art Unit 2434	11/27/2016	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	15	
/KAMBIZ ZAND/ Supervisory Patent Examiner.Art Unit 2434	11/27/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14970412	KIEFER ET AL.
	Examiner	**Art Unit**
	ABIY GETACHEW	2434

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1														
2	2														
3	3														
4	4														
5	5														
6	6														
7	7														
8	8														
9	9														
10	10														
11	11														
12	12														
13	13														
14	14														
15	15														

/ABIY GETACHEW/ Examiner.Art Unit 2434	11/27/2016	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	15	
/KAMBIZ ZAND/ Supervisory Patent Examiner.Art Unit 2434	11/27/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field
Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2006524007	JP	A	2006-10-19	Kazuo et al.		
		1718074	EP	A1	2006-11-02	Kobayashi et al.		
		2006018843	WO	A3	2006-12-14	Carmel et al.		
		2007036666	JP	A	2007-02-08	Takemura, Susumu		
		2007044590	WO	A2	2007-04-19	Gonsalves, Carl et al.		
		2007174375	JP	A	2007-07-05	Toyoda, Yosuke et al.		
		100669616	KR	B1	2007-09-01	Park, Hyun Sang		
		2007235690	JP	A	2007-09-13	Naito, Hitoshi		
		2007113836	WO	A2	2007-10-11	Carmel et al.		
		2007535881	JP	A	2007-12-06	Major, Robert et al.		
		2008010275	WO	A1	2008-01-24	Hatano, Kouji		
		2008042242	WO	A2	2008-04-10	Starkenburg et al.		
		2008235999	JP	A	2008-10-02	Nishimoto et al.		
		2007113836	WO	A3	2008-11-13	Carmel, Sharon et al.		
		2008135932	WO	A2	2008-11-13	Hannuksela, Miska		
		2009065137	WO	A1	2009-05-22	Soroushian, K. et al.		
		2010060106	WO	A1	2010-05-27	Kohli, J et al.		
		2010080911	WO	A1	2010-07-15	Soroushian, K et al.		
		2010089962	WO	A1	2010-08-12	Hashimoto, Kiyoshi		
		2010122447	WO	A1	2010-10-28	Foo, Teck et al.		
		2010147878	WO	A1	2010-12-23	Furbeck et al.		
		2011042898	WO	A1	2011-04-14	Shoham, Tamar et al.		
		2011042900	WO	A1	2011-04-14	Shoham, Tamar et al.		
		2011068668	WO	A1	2011-06-09	Chan, F et al.		
		2011103364	WO	A1	2011-08-25	Thorwirth, Niels		
		2011132184	WO	A1	2011-10-27	Katz, Itamar et al.		
		2011135558	WO	A1	2011-11-03	Shoham, Tamar et al.		
		2012035533	WO	A2	2012-03-22	Shoham, Tamar et al.		
		2012035534	WO	A2	2012-03-22	Shoham, Tamar et al.		
		2012035534	WO	A3	2012-07-05	Shoham, Tamar et al.		
		2012094181	WO	A2	2012-07-12	Soroushian, K et al.		
		2012094189	WO	A1	2012-07-12	Braness, J et al.		

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field
Receipt date: 11/14/2016
PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		2012094171	WO	A1	2012-07-12	Braness, Jason et al.		
		2012035533	WO	A3	2012-08-09	Shoham, Tamar et al.		
		2486517	EP	A1	2012-08-15	Shoham, Tamar et al.		
		2486727	EP	A1	2012-08-15	Shoham, Tamar et al.		
		2507995	EP	A1	2012-10-10	Wood, Andrew et al.		
		2012162806	WO	A1	2012-12-06	Wang, Zhou et al.		
		2012171113	WO	A1	2012-12-20	Wang, Zhou et al.		
		2564354	EP	A1	2013-03-06	Shoham, Tamar et al.		
		2013030833	WO	A1	2013-03-07	Shoham, Tamar et al.		
		2013032518	WO	A2	2013-03-07	Kiefer, Michael et al.		
		2013103986	WO	A2	2013-07-11	Ziskind, Ben et al.		
		2616991	EP	A2	2013-07-24	Shoham, Tamar et al.		
		2617192	EP	A2	2013-07-24	Shoham, Tamar et al.		
		2013111126	WO	A3	2013-08-01	Carmel et al.		
		2013111126	WO	A2	2013-08-01	Shoham, Tamar et al.		
		2013032518	WO	A3	2013-09-06	Kiefer, Michael et al.		
		2013144942	WO	A1	2013-10-03	Shoham, Tamar et al.		
		2486727	EP	A4	2014-03-12	Shoham, Tamar et al.		
		2564354	EP	A4	2014-03-12	Shoham, Tamar et al.		
		2616991	EP	A0	2014-03-12	Shoham, Tamar et al.		
		2014506430	JP	A	2014-03-13	Blanes, Jason et al.		

EXAMINER SIGNATURE

Examiner Signature	/Abiy Getachew/ (11/27/2016)	Date Considered	11/27/2016

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
/A.G./		MORRISON, "EA IFF 85" Standard for Interchange Format Files, January 14, 1985, printed from http://www.dcs.ed.ac.uk/home/mxr/gfx/2d/IFF.txt on March 6, 2006, 24 pgs.	
/A.G./		Office Action for U.S. Application No. 13/223,210, dated April 30, 2015, 14 pgs.	
/A.G./		Office Action for U.S. Application No. 14/564,003, dated April 17, 2015, 28 pgs.	
/A.G./		13/224,298, "Final Office Action Received", 5/19/14, 27 pgs.	
/A.G./		13/905,804, "Non-Final Office Action Received", Notice of Allowance 13/905,804, report completed July 25, 2014	
/A.G./		Open DML AVI-M-JPEG File Format Subcommittee, "Open DML AVI File Format Extensions", Version 1.02, February 28, 1996, 29 pgs.	
/A.G./		PC WORLD.COM, Future Gear: PC on the HiFi, and the TV, from http://www.pcworld.com/article/id,108818-page,1/article.html, printed May 4, 2007, from IDG Networks, 2 pgs.	
/A.G./		Qtv - About BroadQ, printed 5/11/09 from http://www.broadq.com/en/about.php, 1 pg..	
/A.G./		Search Report and Written Opinion for International Application No. PCT/US2005/025845, completed February 5, 2007 and mailed May 10, 2007, 6 pgs.	
/A.G./		Supplementary European Search Report for Application No. EP 04813918, Search Completed December 19, 2002, 3 pgs.	
/A.G./		Supplementary European Search Report for Application No. EP 10729513, International Filing Date January 7, 2010, Search Completed December 9, 2013, 4 pgs.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

/A.G./		TAXAN, A Vel LinkPlayer2 for Consumer, I-O Data USA - Products - Home Entertainment, printed May 4, 2007 from http://www.iodata.com/usa/products/products.php?cat=HNP&sc=AVEL&pId=AVLP2/DVDLA&ts=2&tsc, 1 pg.	
		The Official Microsoft IIS Site, Smooth Streaming Client, 4 pages	
/A.G./		Windows Media Center Extender for Xbox, printed May 9, 2007 from http://www.xbox.com/en-US/support/systemuse/xbox/console/mediacenterextender.htm, 2 pgs.	
		Windows® XP Media Center Edition 2005 from http://download.microsoft.com/download/c/9/a/c9a7000a-66b3-455b-860b-1c16f2eecfec/MCE.pdf, 2 pgs.	
/A.G./		International Search Report and Written Opinion for International Application PCT/US14/30747, completed July 30, 2014, Mailed Aug 22, 2014, 7 Pages	
/A.G./		Invitation to Pay Add'l Fees Rcvd for International Application PCT/US14/39852, Mailed Sep 25, 2 Pgs., 9/25/14	
/A.G./		I-O Data, Innovation of technology arrived, from http://www.iodata.com/catalogs/AVLP2DVDLA_Flyer200505.pdf, 2 pgs.	
/A.G./		"Adaptive Streaming Comparison", January 28, 2010, 5 pgs.	
/A.G./		"Best Practices for Multi-Device Transcoding", Kaltura Open Source Video, 13 pgs.	
/A.G./		"Container format (digital)", printed August 22, 2009 from http://en.wikipedia.org/wiki/Container_format_(digital), 4 pgs.	
/A.G./		"Diagram | Matroska", Retrieved from the Internet: URL:http://web.archive.org/web/201 01217114656/http:l/matroska.org/technical/diagram/index.html [retrieved on 2016-01-29], 12/17/2010	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

/A.G./		"DVD subtitles", sam.zoy.org/writings/dvd/subtitles, dated January 9, 2001, printed July 2, 2009, 4 pgs.	
/A.G./		"DVD-Mpeg differences", http://dvd.sourceforge.net/dvdinfo/dvdmpeg.html, printed on July 2, 2009, 1 pg.	
/A.G./		"Final Committee Draft of MPEG-4 streaming text format", International Organisation for Standardisation, February 2004, 22 pgs.	
/A.G./		"IBM Spearheading Intellectual Property Protection Technology for Information on the Internet; Cryptolope Containers Have Arrived", May 1, 1996, Business Wire, Retrieved from http://www.thefreelibrary.com/IBM+Spearheading+Intellectual+Property+Protection+Technology+for...-a018239381, 6pg.	
/A.G./		"Information Technology - Coding of audio-visual objects - Part 17: Streaming text", International Organisation for Standardisation, February 2004, 22 pgs.	
/A.G./		"Information technology - Coding of audio-visual objects - Part 18: Font compression and streaming", ISO/IEC 14496-18, First edition 7/1/04, 26 pgs.	
/A.G./		International Search Report and Written Opinion for International Application PCT/US2010/020372, mailed March 1, 2010, 7 pgs.	
/A.G./		"Matroska Streaming | Matroska", Retrieved from the Internet: URL:http://web.archive.org/web/201 0121711431 O/http://matroska.org/ technical!streaming/index.html [retrieved on 2016-01-29], 12/17/2010	
/A.G./		"Netflix turns on subtitles for PC, Mac streaming", 3 pgs.	
/A.G./		"OpenDML AVI File Format Extensions", www.the-labs.com/Video/odmlff2-avidef.pdf, Authored by the OpenDML AVI M-JPEG File Format Subcommittee, 09/01/1997, 29 pgs.	
/A.G./		"QCast Tuner for PS2", printed May 11, 2009 from http://web.archive.org/web/20030210120605/www.divx.com/software/detail.php?ie=39, 2 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

/A.G./		"Specifications | Matroska", Retrieved from the Internet: URL:http://web.archive.org/web/201 00706041303/http:/1 www.matroska.org/technical/specs/index.html [retrieved on 2016-01-29, 07/06/2010	
/A.G./		"Supplementary European Search Report for Application No. EP 10834935, International Filing Date November 15, 2010", Search Completed May 27, 2014, 9 pgs.	
/A.G./		"Supported Media Formats", Supported Media Formats, Android Developers, November 27, 2013, 3 pgs.	
/A.G./		"Thread: SSME (Smooth Streaming Medial Element) config.xml review (Smooth Streaming Client configuration file)", 3 pgs.	
/A.G./		"Transcoding Best Practices", From movideo, November 27,2013, 5 pgs.	
/A.G./		"Using HTTP Live Streaming", iOS Developer Library, Retrieved from: http://developer.apple.com/library/ios/#documentation/networkinginternet/conceptual/streamingmediaguide/UsingHTTPLiveStreaming/UsingHTTPLiveStreaming.html#//apple_ref/doc/uid/TP40008332-CH102-SW1, 10 pgs.	
/A.G./		"Video Manager and Video Title Set IFO file headers", printed August 22, 2009 from http://dvd.sourceforge.net/dvdinfo/ifo.htm, 6 pgs.	
/A.G./		"What is a DVD?", printed August 22, 2009 from http://www.videohelp.com/dvd, 8 pgs.	
/A.G./		"What is a VOB file", http://www.mpucoder.com/DVD/vobov.html, printed on July 2, 2009, 2 pgs.	
/A.G./		"What's on a DVD?", printed August 22, 2009 from http://www.doom9.org/dvd-structure.htm, 5 pgs.	
/A.G./		AKHSHABI ET AL., "An Experimental Evaluation of Rate-Adaptation Algorithms in Adaptive Streaming over HTTP", MMSys'11, February 24-25, 2011, 12 pgs.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

EXAMINER SIGNATURE			
Examiner Signature	/Abiy Getachew/ (11/27/2016)	Date Considered	11/27/2016

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.G./

Doc code: IDS 14970412 - GAU: 2434
Doc description: Information Disclosure Statement (IDS) Field

Receipt date: 11/14/2016 PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2617192	EP	A4	2014-03-19	Shoham, Tamar et al.		
		2716048	EP	A1	2014-04-09	Wang, Zhou et al.		
		2721826	EP	A1	2014-04-23	Wang, Zhou et al.		
		2486517	EP	A4	2014-06-11	Shoham, Tamar et al.		
		2751990	EP	A0	2014-07-09	Shoham, Tamar et al.		
		2014145901	WO	A1	2014-09-18	Grab, Eric et al.		
		2807821	EP	A2	2014-12-03	Shoham, Tamar et al.		
		2014193996	WO	A2	2014-12-04	Shivadas et al.		
		2014193996	WO	A3	2015-02-19	Shivadas et al.		
		2015031982	WO	A1	2015-03-12	Zeng, Kai et al.		

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
		"IBM Closes Cryptolopes Unit," December 17, 1997, CNET News, Retrieved from http://news.cnet.com/IBM-closes-Cryptolopes-unit/2100-1001_3206465.html, 3 pgs.	
		"Information Technology-Coding of Audio Visual Objects- Part 2: Visual" International Standard, ISO/IEC 14496-2, Third Edition, Jun. 1, 2004, pp. 1-724 (presented in three parts)	
		"OpenDML AVI File Format Extensions," September 1997, Version 1.02, XP-002179318, OpenDML AVI M-JPEG File Format Subcommitee, 42 pgs.	
		Broadq - The Ultimate Home Entertainment Software, printed 5/11/09 from ittp://web.srchive.org/web/20030401122010/www.broadq.com/qcasttuner/, 1 pg.	
		Cloakware Corporation, "Protecting Digital Content Using Cloakware Code Transformation Technology", Version 1.2, May 2002, pgs. 1-10,	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		European Search Report Application No. EP 08870152, Search Completed May 19, 2011, Mailed May 26, 2011, 10 pgs.	
		European Search Report for Application 11855103.5, search completed June 26, 2014, 9 pgs.	
		European Search Report for Application 11855237.1, search completed June 12, 2014, 9 pgs.	
		European Supplementary Search Report for Application EP09759600, completed January 25, 2011, 11 pgs.	
		Federal Computer Week, "Tool Speeds Info to Vehicles", July 25, 1999, 5 pages.	
		Griffith, Eric, Wi-Fi Planet, The Wireless Digital Picture Fram Arrives, printed May 4, 2007 from http://www.wi-fiplanet.com/news/article.php/3093141, 3 pgs.	
		HTTP Live Streaming Overview, Networking & Internet, Apple, Inc., April 1, 2011, 38 pages	
		IBM CORPORATION and MICROSOFT CORPORATION, "Multimedia Programming Interface and Data Specifications 1.0", August 1991, printed from http://www.kk.iij4u.or.jp/~kondo/wave/mpidata.txt on March 6, 2006, 100 pgs.	
		Informationweek: Front End: Daily Dose, "Internet on Wheels", July 20. 1999, 3 pgs.	
		International Preliminary Report on Patentability for International Application PCT/US14/30747, Issued Sep 15, 2015, Mailed Sep 24, 2015, 6 Pgs.	
		International Preliminary Report on Patentability for International Application No. PCT/US2011/068276, Issue Date March 4, 2014, 23 pgs.	
		International Preliminary Report on Patentability for International Application PCT/US2013/043181, issued Dec 31, 2014, Mailed Jan 8, 2015, 11 Pgs.	
		International Preliminary Report on Patentability for International Application PCT/US2014/039852, issued Dec 1, 2015, Mailed Dec 5, 2015, 8 Pgs.	

Doc code: IDS 14970412 - GAU: 2434 Receipt date: 11/14/2016 PTO/SB/08a (01-10)
Doc description: Information Disclosure Statement (IDS) Field Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		International Search Report and Written Opinion for International Application No. PCT/US08/87999, completed February 7, 2009, mailed March 19, 2009, 6 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US09/46588, completed July 14, 2009, mailed July 23, 2009, 7 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2004/041667, Completed May 24, 2007, Mailed June 20, 2007, 6 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2007/063950, completed Feb 19, 2008; mailed Mar 19, 2008, 9 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2008/083816, completed Jan 10, 2009, mailed Jan 22, 2009, 7 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2010/56733, Completed Jan 3, 2011, Mailed Jan 14, 2011, 6 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2013/043181, Completed Nov 27, 2013, Mailed Dec 6, 2013, 12 pgs.	
		International Search Report and Written Opinion for International Application PCT/US14/39852, Completed Oct 21, 2014, Mailed Dec05, 2014, 11 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2011/066927 Completed April 3, 2012, Mailed April 20, 2012, 14 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2011/067167, Completed June 19, 2012, Mailed July 2, 2012, 11 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2011/068276, completed June 19, 2013, Mailed July 8, 2013, 24 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2013/020572, Completed March 19, 2013, Mailed April 29, 2013, 10 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2005/025845 completed Feb 5, 2007 and mailed May 10, 2007, 7 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		ITS International, "Fleet System Opts for Mobile Server", Aug 26, 1999, 1 page.	
		KISS DP-500 from http://www.kiss-technology.com/?p=dp500, 10 KISS Players, 1 pg.	
		Lifehacker - Boxqueue Bookmarklet Saves Videos for Later Boxee Watching, printed June 16, 2009 from http://feeds.gawker.com/~r/lifehacker/full/~3/OHvDmrlgZZc/boxqueue-bookmarklet-saves-videos-for-late-boxee-watching, 2 pgs.	
		Linksys Wireless-B Media Adapter Reviews, printed May 4, 2007 from http://reviews.cnet.com/Linksys_Wireless_B_Media_Adapter/4505-6739_7-30421900.html?tag=box, 5 pgs.	
		Linksys, KISS DP-500, printed May 4, 2007 from http://www.kiss-technology.com/?p=dp500, 2 pgs.	
		LINKSYS® : "Enjoy your digital music and pictures on your home entertainment center, without stringing wires!", Model No. WMA 11B, printed May 9, 2007 from http://www.linksys.com/servlet/Satellite?c=L_Product_C2&childpagename=US/Layout&cid=1115416830950&p	
		MICROSOFT CORPORATION, "Chapter 8, Multimedia File Formats" 1991, Microsoft Windows Multimedia Programmer's Reference, 3 cover pgs., pp. 8-1 to 8-20	
		Microsoft Windows® XP Media Center Edition 2005, Frequently asked Questions, printed May 4, 2007 from http://www.microsoft.com/windowsxp/mediacenter/evaluation/faq.mspx,	
		Microsoft Windows® XP Media Center Edition 2005: Features, printed May 9, 2007, from http://www.microsoft.com/windowsxp/mediacenter/evaluation/features.mspx, 4 pgs.	
		Microsoft, Microsoft Media Platform: Player Framework, "Silverlight Media Framework v1.1", 2 pages.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.G./

Doc code: IDS 14970412 - GAU: 2434
Doc description: Information Disclosure Statement (IDS) Field

Receipt date: 11/14/2016 PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		Microsoft, Microsoft Media Platform: Player Framework, "Microsoft Media Platform: Player Framework v2.5 (formerly Silverlight Media Framework)", 2 pgs.	

EXAMINER SIGNATURE			
Examiner Signature	/Abiy Getachew/ (11/27/2016)	Date Considered	11/27/2016

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T 5
		MORRISON, "EA IFF 85" Standard for Interchange Format Files, January 14, 1985, printed from http://www.dcs.ed.ac.uk/home/mxr/gfx/2d/IFF.txt on March 6, 2006, 24 pgs.	
		Office Action for U.S. Application No. 13/223,210, dated April 30, 2015, 14 pgs.	
		Office Action for U.S. Application No. 14/564,003, dated April 17, 2015, 28 pgs.	
		13/224,298, "Final Office Action Received", 5/19/14, 27 pgs.	
		13/905,804, "Non-Final Office Action Received", Notice of Allowance 13/905,804, report completed July 25, 2014	
		Open DML AVI-M-JPEG File Format Subcommittee, "Open DML AVI File Format Extensions", Version 1.02, February 28, 1996, 29 pgs.	
		PC WORLD.COM, Future Gear: PC on the HiFi, and the TV, from http://www.pcworld.com/article/id,108818-page,1/article.html, printed May 4, 2007, from IDG Networks, 2 pgs.	
		Qtv - About BroadQ, printed 5/11/09 from http://www.broadq.com/en/about.php, 1 pg..	
		Search Report and Written Opinion for International Application No. PCT/US2005/025845, completed February 5, 2007 and mailed May 10, 2007, 6 pgs.	
		Supplementary European Search Report for Application No. EP 04813918, Search Completed December 19, 2002, 3 pgs.	
		Supplementary European Search Report for Application No. EP 10729513, International Filing Date January 7, 2010, Search Completed December 9, 2013, 4 pgs.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

		TAXAN, A Vel LinkPlayer2 for Consumer, I-O Data USA - Products - Home Entertainment, printed May 4, 2007 from http://www.iodata.com/usa/products/products.php?cat=HNP&sc=AVEL&pId=AVLP2/DVDLA&ts=2&tsc, 1 pg.	
		The Official Microsoft IIS Site, Smooth Streaming Client, 4 pages	
		Windows Media Center Extender for Xbox, printed May 9, 2007 from http://www.xbox.com/en-US/support/systemuse/xbox/console/mediacenterextender.htm, 2 pgs.	
		Windows® XP Media Center Edition 2005 from http://download.microsoft.com/download/c/9/a/c9a7000a-66b3-455b-860b-1c16f2eecfec/MCE.pdf, 2 pgs.	
		International Search Report and Written Opinion for International Application PCT/US14/30747, completed July 30, 2014, Mailed Aug 22, 2014, 7 Pages	
		Invitation to Pay Add'l Fees Rcvd for International Application PCT/US14/39852, Mailed Sep 25, 2 Pgs., 9/25/14	
		I-O Data, Innovation of technology arrived, from http://www.iodata.com/catalogs/AVLP2DVDLA_Flyer200505.pdf, 2 pgs.	
		"Adaptive Streaming Comparison", January 28, 2010, 5 pgs.	
		"Best Practices for Multi-Device Transcoding", Kaltura Open Source Video, 13 pgs.	
		"Container format (digital)", printed August 22, 2009 from http://en.wikipedia.org/wiki/Container_format_(digital), 4 pgs.	
		"Diagram | Matroska", Retrieved from the Internet: URL:http://web.archive.org/web/201 01217114656/http:l/matroska.org/technical/diagram/index.html [retrieved on 2016-01-29], 12/17/2010	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

		"DVD subtitles", sam.zoy.org/writings/dvd/subtitles, dated January 9, 2001, printed July 2, 2009, 4 pgs.	
		"DVD-Mpeg differences", http://dvd.sourceforge.net/dvdinfo/dvdmpeg.html, printed on July 2, 2009, 1 pg.	
		"Final Committee Draft of MPEG-4 streaming text format", International Organisation for Standardisation, February 2004, 22 pgs.	
		"IBM Spearheading Intellectual Property Protection Technology for Information on the Internet; Cryptolope Containers Have Arrived", May 1, 1996, Business Wire, Retrieved from http://www.thefreelibrary.com/IBM+Spearheading+Intellectual+Property+Protection+Technology+for...-a018239381, 6pg.	
		"Information Technology - Coding of audio-visual objects - Part 17: Streaming text", International Organisation for Standardisation, February 2004, 22 pgs.	
		"Information technology - Coding of audio-visual objects - Part 18: Font compression and streaming", ISO/IEC 14496-18, First edition 7/1/04, 26 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2010/020372, mailed March 1, 2010, 7 pgs.	
		"Matroska Streaming | Matroska", Retrieved from the Internet: URL:http://web.archive.org/web/201 0121711431 O/http://matroska.org/technical!streaming/index.html [retrieved on 2016-01-29], 12/17/2010	
		"Netflix turns on subtitles for PC, Mac streaming", 3 pgs.	
		"OpenDML AVI File Format Extensions", www.the-labs.com/Video/odmlff2-avidef.pdf, Authored by the OpenDML AVI M-JPEG File Format Subcommittee, 09/01/1997, 29 pgs.	
		"QCast Tuner for PS2", printed May 11, 2009 from http://web.archive.org/web/20030210120605/www.divx.com/software/detail.php?ie=39, 2 pgs.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

		"Specifications | Matroska", Retrieved from the Internet: URL:http://web.archive.org/web/201 00706041303/http:/1 www.matroska.org/technical/specs/index.html [retrieved on 2016-01-29, 07/06/2010	
		"Supplementary European Search Report for Application No. EP 10834935, International Filing Date November 15, 2010", Search Completed May 27, 2014, 9 pgs.	
		"Supported Media Formats", Supported Media Formats, Android Developers, November 27, 2013, 3 pgs.	
		"Thread: SSME (Smooth Streaming Medial Element) config.xml review (Smooth Streaming Client configuration file)", 3 pgs.	
		"Transcoding Best Practices", From movideo, November 27,2013, 5 pgs.	
		"Using HTTP Live Streaming", iOS Developer Library, Retrieved from: http://developer.apple.com/library/ios/#documentation/networkinginternet/conceptual/streamingmediaguide/UsingHTTPLiveStreaming/UsingHTTPLiveStreaming.html#//apple_ref/doc/uid/TP40008332-CH102-SW1, 10 pgs.	
		"Video Manager and Video Title Set IFO file headers", printed August 22, 2009 from http://dvd.sourceforge.net/dvdinfo/ifo.htm, 6 pgs.	
		"What is a DVD?", printed August 22, 2009 from http://www.videohelp.com/dvd, 8 pgs.	
		"What is a VOB file", http://www.mpucoder.com/DVD/vobov.html, printed on July 2, 2009, 2 pgs.	
		"What's on a DVD?", printed August 22, 2009 from http://www.doom9.org/dvd-structure.htm, 5 pgs.	
		AKHSHABI ET AL., "An Experimental Evaluation of Rate-Adaptation Algorithms in Adaptive Streaming over HTTP", MMSys'11, February 24-25, 2011, 12 pgs.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	02359A.CON2

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on November 14, 2016 at or before 11:59 p.m. Pacific Time under the Rules of 37 C.F.R. 1.8.

/Katrina Lee/

Appl No.	: 14/970,412	Confirmation No. 5115
Applicant	: Sonic IP, Inc.	
Filed	: December 15, 2015	
Title	: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	
TC/A.U.	: 2434	
Examiner	: Abiy Getachew	
Docket No.	: D1-02359A.CON2	
Customer No.	: 71897	

INFORMATION DISCLOSURE STATEMENT § 1.97(c)

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2400 E. Katella, Suite 1050
Anaheim, CA 92806
November 14, 2016

Commissioner

In compliance with the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, and in accordance with the provisions in the MPEP §§ 609 and 707.05(b), enclosed is FORM PTO/SB/08A/B with a listing of references that are known to applicant. Copies of each of the references listed under "Non-Patent Literature Documents" are enclosed.

It is respectfully requested that these references be considered in the examination of this application and identified on the list of references cited on the patent issuing on this application. Applicant also requests that an initialed copy of said FORM PTO/SB/08A/B be entered in the application file, and returned to the Applicant with the next official communication from the Office in accordance with MPEP § 609.

The $180 processing fee will be paid via credit card. If there are any other fees due in connection with this filing, the Commissioner is authorized to charge Deposit Account 50-4407. Please show our docket number with any charge to the Deposit Account.

Respectfully submitted,

KPPB LLP

/Jason D. Wolfe/
Jason D. Wolfe
Registration No. 71,327
949.852.0000

JDW/
Enclosure(s)

DivX Exhibit 2005
Page 2005 - 131
IPR2020-00558

Electronic Patent Application Fee Transmittal

Application Number:	14970412
Filing Date:	15-Dec-2015
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Filer:	Jason Daniel Wolfe/Katrina Lee
Attorney Docket Number:	D1-02359A.CON2

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	27493031
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Jason Daniel Wolfe/Katrina Lee
Filer Authorized By:	Jason Daniel Wolfe
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	15-NOV-2016
Filing Date:	15-DEC-2015
Time Stamp:	00:08:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	morrisoneaiff85.pdf	4255970 bda276008d2f48c54bfc3b729648bd2ac59a8863	no	24

Warnings:

Information:					
2	Other Reference-Patent/App/Search documents	OfficeAction13223210.pdf	13044491 76c7540efbebcdb1e460ff9c25bd7946896cece4	no	14
Warnings:					
Information:					
3	Other Reference-Patent/App/Search documents	OfficeAction14564003.pdf	4929727 88a293a9a74f9a90809f80075b335cc95c18b139	no	28
Warnings:					
Information:					
4	Other Reference-Patent/App/Search documents	13905804NonFinalOfficeActionReceived.pdf	11172750 954659ec59c05e6eb3a27b8553542bb8685fff13	no	14
Warnings:					
Information:					
5	Non Patent Literature	OpenDMLAVIFileFormatExtensions29pgs.pdf	3608747 d990eaf7375834e9c604efb9a794cfb8a462ba1f	no	29
Warnings:					
Information:					
6	Non Patent Literature	PCWorldFutureGear2pgs.pdf	324558 b2357a4a6d51803e5f6441f0bbac7e737c0d8ba9	no	2
Warnings:					
Information:					
7	Non Patent Literature	Qtv1pg.pdf	160531 18d4b810d634386ec149313eca4b490e73723f01	no	1
Warnings:					
Information:					
8	Other Reference-Patent/App/Search documents	pctus2005025845israndwo.pdf	1011093 cda671090b0a47026d1e0b16c63dee717f2e4e16	no	8
Warnings:					
Information:					

9	Other Reference-Patent/App/Search documents	EP04813918eesr.pdf	2725360 26a8144a8d702f1d06fa74e0fc1a7ac86f4f3359	no	3
Warnings:					
Information:					
10	Other Reference-Patent/App/Search documents	EP10729513eesr.pdf	3747044 4a23c195cced37251f54a6b57ab4da34f0814048	no	4
Warnings:					
Information:					
11	Non Patent Literature	taxanavellinkplayer2.pdf	123498 c87090bd00eb62cc65e1e80ba700bf68a78e06a9	no	1
Warnings:					
Information:					
12	Non Patent Literature	officialmicrrosoftisssitesmoothstreaming4pgs.pdf	358172 6b459e008662045677ba793459c1edbb087bf453	no	4
Warnings:					
Information:					
13	Transmittal Letter	windowsmediacenterextenderforxbox2pgs.pdf	192142 dd187fde3751592ac5d69236182d98974ae19889	no	2
Warnings:					
Information:					
14	Non Patent Literature	windowsxpmediacenteredition20052pgs.pdf	577837 cfeac57cf7ab99dafb82d1b7d4f4910845e10645	no	2
Warnings:					
Information:					
15	Other Reference-Patent/App/Search documents	PCTUS1430747israndwo.pdf	9643919 97c9291a8e94afc42214bbc39edc9128c9637e8e	no	7
Warnings:					
Information:					

16	Other Reference-Patent/App/Search documents	invitationtopayaddfees39852.pdf	1546306 7f9f085355b0974f729dc38b3a926b986ec92d0d	no	2
Warnings:					
Information:					
17	Non Patent Literature	iodatainnovationoftechnology.pdf	4250357 740265c71527db6c291c372cf353dbdffea7acb3	no	2
Warnings:					
Information:					
18	Non Patent Literature	adaptivestreamingcompa.pdf	122315 04ce194308d7da6468bc61453fe682a145f29cbc	no	5
Warnings:					
Information:					
19	Non Patent Literature	bestpracticesformultidevi.pdf	2988171 0072179bb07862c15638eaec6cb5115a83939624	no	13
Warnings:					
Information:					
20	Other Reference-Patent/App/Search documents	13224298finalOA05192014.pdf	1924819 313669d54ee4fdb045b5ee0af2063e343ecdf9e5	no	31
Warnings:					
Information:					
21	Non Patent Literature	containerformat.pdf	506144 0575ec7b488612437caffe1333d2ad2c702c6c9b	no	4
Warnings:					
Information:					
22	Non Patent Literature	diagrammatroska.pdf	3651872 3923ec63a5ff528a93aa431d55f7fb553b355545	no	5
Warnings:					
Information:					

23	Non Patent Literature	dvdsubtitles.pdf	465775 478bb356b4448a8bda9c98285df71c175efc60b7	no	4
Warnings:					
Information:					
24	Non Patent Literature	dvdmpegdifferences.pdf	114723 c82aa810228ef348f5fc0731d3f5758e1e371c1f	no	1
Warnings:					
Information:					
25	Non Patent Literature	finalcommitteedraftofmgeg422pgs.pdf	2590014 e204844de103e00422c7ddbfd50c587335cc3872	no	22
Warnings:					
Information:					
26	Non Patent Literature	ibmspearheadingintel.pdf	863545 d2aef033b1261a7582b898c10d662a80487094c2	no	6
Warnings:					
Information:					
27	Non Patent Literature	informationtechnologypart17.pdf	1977771 1a2d349f519deb214be1d9020ab1fa7b1696f279	no	22
Warnings:					
Information:					
28	Non Patent Literature	InformationTechnologyPart18-26pgs.pdf	2450488 bf8f1b269b09acacdfcec8d8e9ab22dae6820b38	no	26
Warnings:					
Information:					
29	Other Reference-Patent/App/Search documents	pctus2010020372israndwo.pdf	646296 a97d2e74d6cdda443476ce38b808440837dc3962	no	7
Warnings:					
Information:					

30	Non Patent Literature	matroskastreaming2pgs.pdf	1214501 ab4a33aa587c89a8271149ac34615b89bdfbbc9e	no	2
Warnings:					
Information:					
31	Non Patent Literature	netflixturnssubtitles.pdf	322961 8ed38f2218c15728ff6be521f205c6f1aa347be9	no	3
Warnings:					
Information:					
32	Non Patent Literature	OpenDMLAVIFileFormatExtentions42pgs.pdf	4772528 da8ba8990846ff9f48cdee29765bb74dc4fa1e13	no	42
Warnings:					
Information:					
33	Non Patent Literature	qcasttunerforps22pgs.PDF	142656 da4feafdb3ea98c5631ca8a383072753f893c51d	no	2
Warnings:					
Information:					
34	Non Patent Literature	specificationsmatroska14pgs.pdf	15228693 ae6b4f82a374bb5ffa8a2533231f32c2e73376d8	no	14
Warnings:					
Information:					
35	Other Reference-Patent/App/Search documents	ep10834935eesr.pdf	372951 00182ab596879aa50db14b7ad91cb3f9ce88bdff	no	9
Warnings:					
Information:					
36	Non Patent Literature	SupportedMediaFormatsAndroidDevelopers3pgs.pdf	87607 d1361b05cc1de961e0303c1bdc32eef2ec6bcd67	no	3
Warnings:					
Information:					

37	Non Patent Literature	threadssmeconfigxml.pdf	220324 387a1b5490afcd1b231720becd7ca750327ddc95	no	3
Warnings:					
Information:					
38	Non Patent Literature	TranscodingBestPractices-movideo.pdf	107612 8f6b1db70f2ea15c850d4d7f1a05c38a2a534796	no	5
Warnings:					
Information:					
39	Non Patent Literature	usinghttplivestreaming10pgs.pdf	289229 e8c188c7ad4da048d15bb4368e5880d5620f1da6	no	10
Warnings:					
Information:					
40	Non Patent Literature	videomanager6pgs.pdf	827191 14db3a71e2d4e8239fe6369bd0917554672dafd4	no	6
Warnings:					
Information:					
41	Non Patent Literature	whatisadvd.pdf	866919 94f3667931fabf3f3a0a1f1334da15301d6a1f43	no	8
Warnings:					
Information:					
42	Non Patent Literature	whatisavobfile.pdf	249419 13489b81250fce187a7d3a523acc96c1ba1944ea	no	2
Warnings:					
Information:					
43	Non Patent Literature	WhatsOnaDVD5pgs.pdf	645038 c232e4d927b4f28d8340b066cf9190b430811034	no	5
Warnings:					
Information:					

44	Non Patent Literature	akhshabietal12pgs.pdf	251038 8ba1abd65e5d5c39f5998c534b4bcc3cda56cd83	no	12
Warnings:					
Information:					
45	Information Disclosure Statement (IDS) Form (SB08)	02359acon2part41449.pdf	107328 3d0d7b14e7b431c8860a188a522df7c054ce3c45	no	5
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
46	Transmittal Letter	02359acon2part4idsxtml.pdf	101622 acbed1d9e1002d999ad134855718623032aa7fce	no	2
Warnings:					
Information:					
47	Fee Worksheet (SB06)	fee-info.pdf	30945 9c928b36e6c61fdd09854d34c52682f79edf7ec7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	105812997		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 53684P/D579	**FOR FURTHER ACTION** see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US05/25845	International filing date (*day/month/year*) 21 July 2005 (21.07.2005)	(Earliest) Priority Date (*day/month/year*) 21 July 2004 (21.07.2004)
Applicant DIVXNETWORKS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**
   a. With regard to the **language**, the international search was carried out on the basis of:
      ☒ the international application in the language in which it was filed.
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. ☐ **Certain claims were found unsearchable** (See Box No. II)
3. ☐ **Unity of invention is lacking** (See Box No. III)
4. With regard to the **title**,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,
   ☐ the text is approved as submitted by the applicant.
   ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,
   a. the figure of the **drawings** to be published with the abstract is Figure No. 4
      ☒ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/25845

Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

A media player (105) manages and controls rights to playback of media content (403) by the media player, which stores, during a registration (401) process in which the media player need not be connected to an external computing system, information (402) used by the media player to control playback. A minimal amount of the media player's memory is used to store the information used to control playback.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/25845

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **G06F 12/14**(2006.01);**G06F 17/30**(2006.01);**H04L 9/00**(2006.01)
H04N 7/16(2006.01)

USPC: 705/59;726/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 705/59; 726/26

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,509,070 (SCHULL) 16 April 1996 (16.04.1996), column 8, line 31 to column 9, line 53; column 10, lines 26-58; column 14 line 56 to column 15, line 35).	1-24

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
05 February 2007 (05.02.2007)	10 MAY 2007
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Matthew Heneghan DEBORAH A. THOMAS PARALEGAL SPECIALIST Telephone No. (571)272-2100

Form PCT/ISA/210 (second sheet) (April 2005)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
WESLEY W. MONROE
CHRISTIE, PARKER & HALE, LLP
P.O. BOX 7068
PASADENA, CA 91109-7068

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	10 MAY 2007
Applicant's or agent's file reference 53684P/D579	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US05/25845	21 July 2005 (21.07.2005)	21 July 2004 (21.07.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC: **G06F 12/14**(2006.01);**G06F 17/30**(2006.01);**H04L 9/00**(2006.01) H04N 7/16(2006.01)
USPC: 705/59;726/26

Applicant

DIVXNETWORKS, INC.

1. This opinion contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☒	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(*b*) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	05 February 2007 (05.02.2007)	Matthew Heneghan DEBORAH A. THOMAS PARALEGAL SPECIALIST Telephone No. (571)272-2100 Dat

Form PCT/ISA/237 (cover sheet) (April 2005)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/25845

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/25845

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims NONE	YES
	Claims 1-24	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-24	NO
Industrial applicability (IA)	Claims 1-24	YES
	Claims NONE	NO

2. Citations and explanations:

Claims 1-24 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry. The invention may be in the area of protected copyrighted media from unauthorized usage.

Claims 1-24 lack novelty under PCT Article 33(2) as being anticipated by US 5509070 (SCHULL).
As per claims 1-5 and 17, Schull discloses a distribution system wherein registration information including a guard (a password) is provided for producing configuration information; received back is the password, keys, and key ID for key lookup and a check against the password for key retrieval (see column 8, line 31 to column 9, line 53; column 10, lines 26-58).
As per claim 6-16 and18-24, Schull discloses a key lookup according to the ID for media retrieval (see column 14, line 56 to column 15, line 35).

Claims 1-24 lack an inventive step under PCT Article 33(3) as being obvious over US 5509070 (SCHULL) for the reasons stated regarding the lack of novelty.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/25845

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/25845

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

In the preamble of claim 1, "randomly-generated" should read as "randomly generating"

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference D1-03336.PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US14/30747	International filing date *(day/month/year)* 17 March 2014 (17.03.2014)	(Earliest) Priority Date *(day/month/year)* 15 March 2013 (15.03.2013)
Applicant DIVX, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. 1

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/30747

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 15/173 (2014.01)
USPC - 709/223, 226
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8): G06F 15/173, 12/00, 12/02, 15/16, 15/167, 21/00 (2014.01); USPC: 709/223, 226, 213, 224, 225, 234; 711/170, E12.001, E12.002; 705/51; CPC: H04L 41/0213, 29/08144, 29/08072, 29/06, 47/10; G06F 12/023, 12/0246, 3/067, 21/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); ProQuest; IEEE/IEEEXplore; Google/Google Scholar; Search terms: Pool, group, content delivery network, user, customer, client, stream, transmit, send, content, media, video, music, song

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2012/0124191 A1 (LYON, B) 17 May 2012; abstract; paragraphs [0008], [0010], [0011], [0013]-[0015].	1, 8, 15 --- 2-7, 9-14, 16-21
Y	US 2007/0271385 A1 (DAVIS, A et al.) 22 November 2007; paragraphs [0029], [0031], [0051].	2, 3, 5, 9, 10, 12, 16, 17, 19
Y	US 2011/0191439 A1 (DAZZI, A et al.) 04 August 2011; paragraphs [0015], [0036], [0037].	4, 11, 18
Y	US 2012/0166633 A1 (BAUMBACK, M et al.) 28 June 2012; paragraphs [0068], [0069].	6, 7, 13, 14, 20, 21

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30 July 2014 (30.07.2014)	22 AUG 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: David J. Bailey
KPPB LLP
2400 E. Katella, Suite 1050
Anaheim, CA 92806
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	22 AUG 2014
Applicant's or agent's file reference D1-03336.PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/30747	17 March 2014 (17.03.2014)	15 March 2013 (15.03.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06F 15/173 (2014.01)
USPC - 709/223, 226

Applicant DIVX, LLC

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	30 July 2014 (30.07.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/30747

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

   ☐ on paper

   ☐ in electronic form

   b. (time)

   ☐ in the international application as filed

   ☐ together with the international application in electronic form

   ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/30747

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	2-7, 9-14, 16-21	YES
	Claims	1, 8, 15	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-21	NO
Industrial applicability (IA)	Claims	1-21	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1, 8, and 15 lack novelty under PCT Article 33(2) as being anticipated by US 2012/0124191 A1 (LYON).

As per claim 1, Lyon discloses a system for delivery of content (system for managing TCP anycast requests at content delivery network nodes; abstract; paragraph [0008]), the system comprising: processing circuitry (a processor configured to execute instructions stored on a memory coupled to the processor; paragraph [0008]) configured to: receive a request to stream the content, the request being received from a user equipment device (a request for live video content from an end user is routed by one or more ISP nodes to an appropriate CDN node (receive a request to stream the content, the request being received from a user equipment device); paragraph [0010], [0013]); determine a first location of the user equipment device (an ISP often routes the request to the geographically closest CDN node (determine a first location of the user equipment device); paragraph [0011], [0013]); determine a count of user equipment devices that are located at the first location and are currently streaming the content (requests for content from users are routed to the geographically closest CDN node and determines whether the CDN node has the capacity to service the request based on number of sessions currently being services by the CDN node (determine a count of user equipment devices that are located at the first location and are currently streaming the content); paragraphs [0013], [0014]); determine whether the count meets a threshold (it is determined at the CDN node whether it has the capacity to service the request to the large user base (determine whether the count meets a threshold); paragraphs [0013], [0014]); and responsive to determining that the count meets the threshold, add a first content delivery network to a pool of one or more content delivery networks that are used to stream the content (if CDN node 300 does not have the capacity to handle a new request (responsive to determining that the count meets the threshold), the request is redirected to another CDN node via a virtual tunnel to CDN node 314. CDN node 300 may include virtual tunnels to multiple another nodes of the CDN (add a first content delivery network to a pool of one or more content delivery networks that are used to stream the content); paragraphs [0014], [0015]).

As per claim 8, Lyon discloses a method for delivery of content (process for managing TCP anycast requests at content delivery network nodes; abstract; paragraph [0008]), comprising: receiving a request to stream the content, the request being received from a user equipment device (a request for live video content from an end user is routed by one or more ISP nodes to an appropriate CDN node (receiving a request to stream the content, the request being received from a user equipment device); paragraphs [0010], [0013]); determining a first location of the user equipment device (an ISP often routes the request to the geographically closest CDN node (determining a first location of the user equipment device); paragraphs [0011], [0013]); determining a count of user equipment devices that are located at the first location and are currently streaming the content (requests for content from users are routed to the geographically closest CDN node and determines whether the CDN node has the capacity to service the request based on number of sessions currently being services by the CDN node (determining a count of user equipment devices that are located at the first location and are currently streaming the content); paragraphs [0013], [0014]); determining whether the count meets a threshold (it is determined at the CDN node whether it has the capacity to service the request to the large user base (determining whether the count meets a threshold); paragraphs [0013], [0014]); and responsive to determining that the count meets the threshold, adding, by processing circuitry, a first content delivery network to a pool of one or more content delivery networks that are used to stream the content (if CDN node 300 does not have the capacity to handle a new request (responsive to determining that the count meets the threshold), the request is redirected to another CDN node via a virtual tunnel to CDN node 314 by a processor configured to execute instructions stored on a memory coupled to the processor. CDN node 300 may include virtual tunnels to multiple another nodes of the CDN (adding, by processing circuitry, a first content delivery network to a pool of one or more content delivery networks that are used to stream the content); paragraphs [0008], [0014], [0015]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/30747

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
-***-Continued from Box V: Citations and Explanations-***-

As per claim 15, Lyon discloses a non-transitory computer-readable medium containing computer-executable instructions that, when executed by a processor, cause the processor to perform a method for delivery of content (a computer program product embodied on a computer readable storage medium; and a processor, such as a processor configured to execute instructions stored on a memory coupled to the processor for managing TCP anycast requests at content delivery network nodes; abstract; paragraph [0008]), the method comprising: receiving a request to stream the content, the request being received from a user equipment device (a request for live video content from an end user is routed by one or more ISP nodes to an appropriate CDN node (receiving a request to stream the content, the request being received from a user equipment device); paragraphs [0010], [0013]); determining a first location of the user equipment device (an ISP often routes the request to the geographically closest CDN node (determining a first location of the user equipment device); paragraphs [0011], [0013]); determining a count of user equipment devices that are located at the first location and are currently streaming the content (requests for content from users are routed to the geographically closest CDN node and determines whether the CDN node has the capacity to service the request based on number of sessions currently being services by the CDN node (determining a count of user equipment devices that are located at the first location and are currently streaming the content); paragraphs [0013], [0014]); determining whether the count meets a threshold (it is determined at the CDN node whether it has the capacity to service the request to the large user base (determining whether the count meets a threshold); paragraphs [0013], [0014]); and responsive to determining that the count meets the threshold, adding a first content delivery network to a pool of one or more content delivery networks that are used to stream the content (if CDN node 300 does not have the capacity to handle a new request (responsive to determining that the count meets the threshold), the request is redirected to another CDN node via a virtual tunnel to CDN node 314. CDN node 300 may include virtual tunnels to multiple another nodes of the CDN (adding a first content delivery network to a pool of one or more content delivery networks that are used to stream the content); paragraphs [0014], [0015]).

Claims 2, 3, 5, 9, 10, 12, 16, 17, and 19 lacks an inventive step under PCT Article 33(3) as being obvious over Lyon in view of US 2007/0271385 A1 to DAVIS et al. (hereinafter "Davis").

As per claims 2, 9, and 16, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein the first content delivery network includes a first plurality of computing devices that are part of a first data center. Davis discloses wherein the first content delivery network includes a first plurality of computing devices that are part of a first data center (CDN mapping information maps end-user IP blocks to data centers that host CDN regions (content delivery network includes a first plurality of computing devices that are part of a first data center); paragraphs [0039], [0051]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Davis, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would enable an end user client to obtain access to contents on different CDN edge servers while preserving a session state.

As per claims 3, 10, and 17, the combination of Lyon and Davis discloses the system of claim 2, the method of claim 9, and the non-transitory computer readable medium of claim 16, respectively. Lyon further discloses the pool includes a second content delivery network (if CDN node 300 does not have the capacity to handle a new request, the request is redirected to another CDN node via a virtual tunnel to CDN node 314. CDN node 300 may include virtual tunnels to multiple another nodes of the CDN (the pool includes a second content delivery network); paragraphs [0014], [0015]). However, Lyon does not disclose the second content delivery network includes a second plurality of computing devices that are part of a second data center; and the second data center is different from the first data center. Davis discloses the second content delivery network includes a second plurality of computing devices that are part of a second data center (CDN mapping information maps end-user IP blocks to data centers that host CDN regions (content delivery network includes a first plurality of computing devices that are part of a first data center); paragraphs [0039], [0051]); and the second data center is different from the first data center (CDN region 500 includes data center 1 and CDN region 502 includes data center 2 (the second data center is different from the first data center); figure 5; paragraph [0045]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Davis, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would enable an end user client to obtain access to contents on different CDN edge servers while preserving a session state.

As per claims 5, 12, and 19, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein determining the first location of the user equipment device includes retrieving at least a portion of a Domain Name Service (DNS) record corresponding to the user equipment device, the portion being indicative of at least one of a network or a network domain the user equipment device is part of. Davis discloses wherein determining the first location of the user equipment device includes retrieving at least a portion of a Domain Name Service (DNS) record corresponding to the user equipment device, the portion being indicative of at least one of a network or a network domain the user equipment device is part of (a request for content is resolved through a CDNSP-managed DNS to identify a best region. When a request for the object is made, a customer's DNS system directs the name query to the CDNSP DNS request routing mechanism (determining the first location of the user equipment device includes retrieving at least a portion of a DNS record corresponding to the user equipment device, the portion being indicative of at least one of a network domain the user equipment device is part of); paragraph [0029]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Davis, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would easily identify the location of the device and find the best server for the device.

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/30747

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
-***-Continued from Previous Supplemental Box-***-

Claims 4, 11, and 18 lacks an inventive step under PCT Article 33(3) as being obvious over Lyon in view of US 2011/0191439 A1 to DAZZI et al. (hereinafter "Dazzi").

As per claims 4, 11, and 18, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein adding the first content delivery network to the pool includes providing an encoder with an identifier of the first content delivery network, the encoder being configured to encode the content to produce encoded content and disseminate the encoded content among content delivery networks in the pool. Dazzi discloses wherein adding the first content delivery network to the pool includes providing an encoder with an identifier of the first content delivery network (the media ingestion system may encode the obtained video file into a format supported by the content distribution system and assign an identifier which may be based on where the media content was stored on the data storage cluster (providing an encoder with an identifier of the content delivery network); paragraphs [0015], [0036]), the encoder being configured to encode the content to produce encoded content and disseminate the encoded content among content delivery networks in the pool (the media ingestion system may encode the obtained video file into a format supported by the content distribution system and replicates across multiple volumes of the data storage cluster based on a set of data which is associated with the media content (the encoder being configured to encode the content to produce encoded content and disseminate the encoded content among content delivery networks in the pool); paragraphs [0036], [0037]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Dazzi, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would protect the contents during the transmissions.

Claims 6, 7, 13, 14, 20, and 21 lack an inventive step under PCT Article 33(3) as being obvious over Lyon in view of US 2012/0166633 A1 to Baumback, et al. (hereinafter "Baumback").

As per claims 6, 13, and 20, Lyon discloses the system of claim 1, the method of claim 6, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein the first content delivery network is selected from a plurality of available content delivery networks based on a quality of service metric corresponding to the first content delivery network. Baumback discloses wherein the first content delivery network is selected from a plurality of available content delivery networks based on a quality of service metric corresponding to the first content delivery network (the processing device identifies one or more DCN service providers, from a number of CDN service providers, to use in processing a resource request based on CDN selection criteria including CDN quality of service information (wherein the first content delivery network is selected from a plurality of available content delivery networks based on a quality of service metric corresponding to the first content delivery network); paragraphs [0068], [0069]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Baumback, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would provide the best quality of service to the users.

As per claims 7, 14, and 21, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein the first content delivery network is selected from a plurality of available content delivery networks based on a price corresponding to the first content delivery network. Baumback discloses wherein the first content delivery network is selected from a plurality of available content delivery networks based on a price corresponding to the first content delivery network (the processing device identifies one or more DCN service providers, from a number of CDN service providers, to use in processing a resource request based on CDN selection criteria including cost information associated with processing a resource request using a particular CDN (wherein the first content delivery network is selected from a plurality of available content delivery networks based on a price corresponding to the first content delivery network); paragraphs [0068], [0069]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Baumback, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would provide services to the users with lower costs.

Claims 1-21 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: Jason D. Wolfe
KPPB LLP
2400 E. Katella, Suite 1050
Anaheim, CA 92806
United States of America

PCT

INVITATION TO PAY ADDITIONAL FEES
AND, WHERE APPLICABLE, PROTEST FEE

(PCT Article 17(3)(a) and Rules 40.1 and 40.2(e))

	Date of mailing *(day/month/year)* 25 SEP 2014
Applicant's or agent's file reference 03351AB.PCT	**PAYMENT DUE** within **ONE MONTH** from the above date of mailing
International application No. PCT/US14/39852	International filing date *(day/month/year)* 28 May 2014 (28.05.2014)
Applicant SONIC IP, INC.	

1. This International Searching Authority

(i) considers that there are 2 *(number of)* inventions claimed in the international application covered by the claims indicated below/on an extra sheet:

Group I: Claims 1-18; Group II: Claims 19-41

(ii) therefore considers that **the international application does not comply with the requirement of unity of invention** (Rules 13.1, 13.2 and 13.3) for the reasons indicated below/on an extra sheet:

-***-Please see Supplemental Page-***-

(iii) ☐ has carried out a partial international search (see Annex) ☒ will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:

Group I: Claims 1-18

(iv) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid.

2. Consequently, the applicant is hereby **invited to pay**, within the time limit indicated above, additional fees in the amount indicated below:

$2080.00 (Fee per additional invention) x 1 (number of additional inventions) = $2080.00 (See Item 2 of annex) (total amount of additional fees/currency)

3. The applicant is informed that, according to Rule 40.2(c), **the payment of any additional fees may be made under protest**, that is, a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fees is excessive, where applicable, subject to the payment of a protest fee.

Where the applicant pays additional fees under protest, the applicant is hereby invited, within the time limit indicated above, to pay a protest fee (Rule 40.2(e)) in the amount of _____ *(amount/currency)*

Where the applicant has not, within the time limit indicated above, paid the required protest fee, the protest will be considered not to have been made and the International Searching Authority will so declare.

4. ☐ Claim(s) Nos. _____ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300

Form PCT/ISA/206 (April 2005)

INVITATION TO PAY ADDITIONAL FEES
AND, WHERE APPLICABLE, PROTEST FEE

International application No.
PCT/US14/39852

Item 2 (continued). For International Applications filed on or after 01 January 2014, Applicant is reminded that the search fee per additional invention indicated in item 2 is the undiscounted fee per additional invention. An Applicant may pay the search fee per additional invention fee reduced by 50% (small entity assertion) or 75% (micro entity certification), as appropriate. See 37 CFR 1.27 and 1.29.

-***-Continued from 1.(ii)-***-

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fee must be paid.

Group I: Claims 1-18 are directed toward a method, system, and non-transitory computer-readable storage medium for supporting video streaming with trick play.

Group II: Claims 19-41 are directed toward a method, system, and non-transitory computer-readable storage medium for video playback with trick play.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I include encoding video into multiple adaptive bitrate streams; receiving a playlist request for one of the adaptive bitrate streams; and sending a playlist identifying the stored files of the selected stream, which are not present in Group II.

The special technical features of Group II include playing back video from the down loaded selected stream files; downloading the trick play files based on the playlist; and playing back video from the downloaded trick play files, which are not present in Group I.

The common technical features shared by Groups I and II are a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor to execute the steps of: downloading files of encoded video from a selected stream of encoded video; sending and receiving a trick play playlist request corresponding to the selected stream; and sending and receiving a trick play playlist identifying files of encoded video from a trick play stream of encoded video corresponding to the selected stream.

However, these common features are previously disclosed by US 2012/0311094 A1 to Biderman, D et al. (hereinafter "Biderman"). Biderman discloses a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor to execute the steps (system may be implemented with a processor executing instructions stored on a memory, paragraph [0179]) of: downloading files of encoded video from a selected stream of encoded video (player device downloads and uses a standard playlist including URLs referring to all of the content coimprising segmented media files, which the player then downloads in order, paragraphs [0010] and [0047]); sending and receiving a trick play playlist request corresponding to the selected stream; and sending and receiving a trick play playlist identifying files of encoded video from a trick play stream of encoded video corresponding to the selected stream (player device may request and download from a server an I-frame playlist for the content that allows playback at a faster than normal rate, called a "trick play" mode, paragraphs [0010] and [0055]).

Since the common technical features are previously disclosed by the Biderman reference, these common features are not special and so Groups I and II lack unity.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference D1-01622.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 10/20372	International filing date *(day/month/year)* 07 January 2010 (07.01.2010)	(Earliest) Priority Date *(day/month/year)* 07 January 2009 (07.01.2009)
Applicant DIVX, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the language, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II).

3. ☐ Unity of invention is lacking (see Box No. III).

4. With regard to the title,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

   a. the figure of the drawings to be published with the abstract is Figure No. 1

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 10/20972

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 15/16 (2010.01)
USPC - 709/217
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC: 709/217

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 707/104.1; 715/205

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
pubWEST(PGPB,USPT,USOC,EPAB,JPAB); googleScholar
Search Terms Used: content/tag/metadata server, media guide/menu, content description/recommendation, metadata, IMDB, guide, menu, chapters, subtitles, DivX TV, IPTV, BBC iPlayer, DivX, online TV

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2008/0195664 A1 (MAHARAJH et al.) 14 August 2008 (14.08.2008) Entire document, especially: Abstract, para [0006], [0007], [0012]-[0014], [0028], [0041], [0042], 0161], [0164], [0165], [0174], [0184], [0200], [0223], [0329], [0534]-[0538] and Fig. 1, 2, 12, 50	19-22 --- 1-18
Y	US 2008/0086456 A1 (RASANEN et al.) 10 April 2008 (10.04.2008) Entire document, especially: Abstract, para [0009], [0012], [0034], [0052], [0085], [0088], [0093], [0112]-[0114], Fig. 1, 3, 11	1-18
A	US 2008/0005175 A1 (BOURKE et al.) 03 January 2008 (03.01.2008)	1-22
A	US 2008/0086747 A1 (RASANEN et al.) 10 April 2008 (10.04.2008)	1-22
A	US 2006/0066099 A1 (BRODERSEN et al.) 13 March 2008 (13.03.2008)	1-22

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 February 2009 (10.02.2009)	01 MAR 2010
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: PATRICK Y. IKEHARA
KAUTH, POMEROY, PECK & BAILEY LLP
2675 MICHELLE DRIVE
SUITE 110
IRVINE, CA 92606

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	01 MAR 2010

Applicant's or agent's file reference	FOR FURTHER ACTION
D1:01622.PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 10/20372	07 January 2010 (07.01.2010)	07 January 2009 (07.01.2009)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06F 15/16 (2010.01)
USPC - 709/217

Applicant DIVX, INC.

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	10 February 2009 (10.02.2009)	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2009)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/20372

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

a. (means)

☐ on paper

☐ in electronic form

b. (time)

☐ in the international application as filed

☐ together with the international application in electronic form

☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/20372

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-18	YES
	Claims	19-22	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-22	NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims	None	NO

2. Citations and explanations:

Claims 19-22 lack novelty under PCT Article 33(2) as being obvious over US 2008/0195664 A1 to Maharajh et al. (hereinafter 'Maharajh').

As to claim 19, Maharajh teaches a method of accessing content distributed throughout a network (optimization of content delivery, see para [0006]; architecture 804 may be readily scaled through a server based, modular computing environment that may support a high degree of encoding concurrency, see para [0164]; one or more network components, such as a server, a streaming protocol server, and the like, see para [0200]; FIG. 50 provides an embodiment of the architecture for the media platform 100, see para [0534] and Fig. 50), the method comprising: generating a tag referencing a piece of content accessible via a content server using a tagging device (checking the content database to look up a content file name by ID, see para [0536]; optimization of content delivery, facilitating access to content on a mobile device, ingesting content, storing content and metadata in a file format optimized for use on a mobile platform, see para [0006]; content delivery is based at least in part on the automated tag processing, see Abstract); adding the generated tags to a searchable database of tags by a tag server (A system of automated content tagging on a mobile media platform may comprise an ingestion facility; a tagging facility; and a recommendation engine. A system of targeting advertising content on a mobile media platform, may comprise providing tagged content; providing an ad fulfillment engine which targets advertising content based on at least one tag, see para [0014]); and accessing the database, selecting at least one tag and retrieving content from the content server referenced by the retrieved tag by a playback device (user mobile handsets 5002, third party components may include an ad server database 5026, a user profile database 204, consumption data store 5012, streaming server 5020, see para [0534]-[0536] and Fig. 50).

As to claim 20, Maharajh teaches each tag includes an identifier of the content and location information of the content (FIG. 12 depicts automated tagging with location information and intelligence, see para [0028] and Fig. 12).

As to claim 21, Maharajh teaches the identifier is a unique database identifier and the location information is associated to a uniform resource identifier (Tagging 108 may also including functional data such as URLs, addresses, contact information, actions, and the like, see para [0164]).

As to claim 22, Maharajh teaches the identifier and the location information is substantially smaller in size than the content (tag 108 may be an explicit component of a file, such as metadata, a header, an inter-clip identifier, and the like, see para [0174]).

(See supplemental box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box V.2 - Citations and explanations

Claims 1-18 lack inventive step under PCT Article 33(3) as being obvious over Maharajh in view of US 2008/0086456 A1 to Rasanen et al. (hereinafter 'Rasanen').

As to claim 1, Maharajh teaches a content system comprising: a content server configured to provide access to content (optimization of content delivery, see para [0006]; architecture 804 may be readily scaled through a server based, modular computing environment that may support a high degree of encoding concurrency, see para [0184]; one or more network components, such as a server, a streaming protocol server, and the like, see para [0200]; checking the content database to look up a content file name by ID, see para [0538]); a tag server including a searchable database of tags (tags may be metadata included in same file as the content, see para [0007]); a tagging device in network communication with the tag server and the content server (applying tags to the content and processing the content based on the tags, see para [0007], content delivery is based at least in part on the automated tag processing, see Abstract), where the tagging device is configured to access content via the content server and to automatically generate at least one tag referencing the accessed content that is provided to the tag server for inclusion into the searchable database of tags (automated content tagging, see para [0012]: A system of automated content tagging on a mobile media platform may comprise an ingestion facility; a tagging facility; and a recommendation engine. A system of targeting advertising content on a mobile media platform, may comprise providing tagged content; providing an ad fulfillment engine which targets advertising content based on at least one tag, see para [0014]); and a playback device in network communication with the tag server and the content server (user mobile handsets 5002, third party components may include an ad server database 5026, a user profile database 204, consumption data store 5012, streaming server 5020, see para [0534]-[0536] and Fig. 50), where the playback device is configured to search the database (a user profile which favors sports content 128 may result in a higher ranking for content 128 search results for the Blue Jays baseball team than for the birds when a user searches for "blue jays" for his or her mobile device, see para [0329]), retrieve from the database a tag that references content accessible via the content server and access the content referenced by the retrieved tag via the content server (A system of tagging mobile content may comprise a mobile media platform for distribution of mobile content to mobile device users, may comprise providing tagged content; providing an ad fulfillment engine which targets advertising content based on at least one tag, see para [0013]-[0014]).
Maharajh does not expressly teach a content guide system.
However, Rasanen teaches a content guide system (online media guidance application, see para [0009] and Fig. 1) comprising: a content server configured to provide access to content (videos available on web servers 1116, see para [0093] and Fig. 11); a tag server including a searchable database of tags (Data store 1124 may store the metadata (e.g., title, description, URL, etc.) associated with each video from web servers 1116, see para [0093] and Fig. 11); a playback device in network communication with the tag server and the content server (equipment devices 1102, 1104, and 1106 are shown as through communications network 1114, see para [0088] and Fig. 11), where the playback device is configured to search the database (user may enter one or more search terms or keywords (e.g., in search bar 224), and the subset of videos may be determined based on a comparison of the keywords with the stored metadata associated with each video, see para [0114], retrieve from the database a tag that references content accessible via the content server and access the content referenced by the retrieved tag via the content server (media content being displayed, see para [0034]).
It would have been obvious to one of ordinary skill in the art to combine the content guide system, as taught by Rasanen, with Maharajh because a guide simplifies the retrieval of content across a large number of sites and enables viewing of content on multiple devices, thus increasing the user-friendliness and range of applicability of the combined invention.

As to claim 2, Maharajh teaches each tag includes an identifier of the content and location information of the content (FIG. 12 depicts automated tagging with location information and intelligence, see para [0028] and Fig. 12).

As to claim 3, Maharajh teaches the identifier is a unique database identifier and the location information is associated to a uniform resource identifier (Tagging 108 may also including functional data such as URLs, addresses, contact information, actions, and the like, see para [0184]).

As to claim 4, Rasanen teaches the identifier and the location information is substantially smaller in size than the content (each video may be associated with one or more entries in the media guidance database, see para [0112]).

As to claim 5, Maharajh teaches the playback device is configured to request a tag referencing content stored on the content server to be added to or deleted from the database (other actions associated with content lifecycle tags 108 may include when to stalemate it, when to publish it, when it was published, when to remove it, when to delete it, see para [0161]).

As to claim 6, Maharajh teaches the network communication is through the Internet (content originating on the World Wide Web or the Internet, see para [0223]).

As to claim 7, Rasanen teaches the network communication is through a local area network (media guidance application settings across in-home devices, see para [0085]).

As to claim 8, Maharajh teaches the playback device is configured to receive content recommendation and the playback device is configured to request a tag referencing content to be added to the database based on the content recommendation (providing recommendations based on the tags, see para [0012]).

As to claim 9, Maharajh teaches a recommendation server configured to search through the database and to transmit content recommendations to the playback device (a recommendation engine, see para [0014]).

(See supplemental box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box V.2 - Citations and explanations

As to claim 10, Rasanen teaches the content recommendation is based on a selection criteria and the playback device is configured to create the selection criteria (recommended video may be displayed by listing the title of the video 252, a graphical identifier for the video 254 with a ratings overlay 256, and a brief program description 258 of the video, recommended videos may be presented to the user by providing a format similar to listing 228, see para [0052] and Fig. 3).

As to claim 11, Maharajh teaches the playback device is configured to receive pre-cached portions of the content (feeding the mobile device 802 through a live or cached stream, see para [0165]).

As to claim 12, Maharajh teaches the content server is configured to obtain pre-cached portions of the content (The platform would obtain, transcode, and cache the requested content from the content provider site, see para [0165]).

As to claim 13, Rasanen teaches the tag server does not contain the content (Communications with the web server 1116 and media guidance data source 1118 may be exchanged over one or more communications paths, see para [0088] and Fig. 11).

As to claim 14, Rasanen teaches the content server stores a portion of the content (web server 1116 and media guidance data source 1118 may be integrated as one source device, see para [0088]).

As to claim 15, Maharajh teaches the tag does not include a temporal component (The tags may relate to digital rights management. The tags may be associated with various business models of the mobile media platform, see para [0007]).

As to claim 16, Maharajh teaches the tags are a subset of data within a database having data unrelated to the tags and the content in which the tags refer (metadata in a file format optimized for use on a mobile platform, integrating multiple billing systems, see para [0006]).

As to claim 17, Maharajh teaches the tags include at least one identifier associating the tags to a specific content guide within the database (selectable options within options region 126 may concern features related to program listings in grid 102, see para [0041]; display 200 is displayed a result of user selection of listing 116 in display 100, see para [0042] and Fig. 1-2).

As to claim 18, Rasanen teaches the database is larger in size than the database of tags (the set of online media that the guidance application provides guidance for is determined by crawling through a plurality of websites and obtaining information on media provided by each website. The obtained information may include metadata (e.g., title, runtime, description, etc.) corresponding to each video, see para [0012]).

Claims 1-22 have industrial applicability as defined by PCT Article 33(4), because the subject matter can be made or used in industry.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code [1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		4009331		1977-02-22	Goldmark et al.	
		4694357		1987-09-15	Rahman et al.	
		4802170		1989-01-31	Trottier, Lorne	
		4964069		1990-10-16	Ely, Joseph C.	
		5119474		1992-06-02	Beitel, Bradley J., et al.	
		5274758		1993-12-28	Beitel, Bradley J., et al.	
		5361332	A	1994-11-01	Yoshida, Masayuki et al.	
		5396497		1995-03-07	Veltman, Markus H.	
		5404436	A	1995-04-04	Hamilton, Robert H.	
		5420801		1995-05-30	Dockter, Michael J., et al.	
		5420974		1995-05-30	Morris, James K., et al.	
		5471576		1995-11-28	Yee, Raymond L.	
		5479303		1995-12-26	Suzuki et al.	
		5487167		1996-01-23	Dinallo, Chris A., et al.	
		5502766	A	1996-03-26	Boebert, William et al.	
		5509070	A	1996-04-16	Schull, Jonathan	
		5533021		1996-07-02	Branstad, Mark W., et al.	
		5537408		1996-07-16	Branstad, Mark W., et al.	
		5539908		1996-07-23	Chen, Fetchi et al.	
		5541662		1996-07-30	Adams, Robert et al.	
		5583652		1996-12-10	Ware, Malcohm S.	
		5589993	A	1996-12-31	Naimpally, Saiprasad et al.	
		5627936		1997-05-06	Prasad, Rama R.	
		5633472		1997-05-27	DeWitt, Frederick J., et al.	
		5642171		1997-06-24	Baumgartner, Donn et al.	
		5655117		1997-08-05	Goldberg et al.	
		5664044		1997-09-02	Ware, Malcolm S.	
		5675382		1997-10-07	Bauchspies	
		5675511		1997-10-07	Prasad, Rama R., et al.	
		5684542		1997-11-04	Tsukagoshi	
		5715403	A	1998-02-03	Stefik, Mark	
		5717816		1998-02-10	Boyce et al.	
		5719786		1998-02-17	Nelson et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		5745643		1998-04-28	Mishina, M.	
		5751280		1998-05-12	Abbott, Michael J.	
		5754648	A	1998-05-19	Ryan et al., John	
		5763800		1998-06-09	Rossum, David P., et al.	
		5765164		1998-06-09	Prasad, Rama R., et al.	
		5794018		1998-08-11	Vrvilo, Benjamin et al.	
		5805700	A	1998-09-08	Nardone, Joseph et al.	
		5822524		1998-10-13	Chen et al., Huey-Shiang	
		5828370		1998-10-27	Moeller et al.	
		5841432	A	1998-11-24	Carmel, Sharon et al.	
		5844575	A	1998-12-01	Reid, J. L.	
		5848217		1998-12-08	Tsukagoshi, I et al.	
		5867625	A	1999-02-02	McLaren, David	
		5887110	A	1999-03-23	Sakamoto, Hideki et al.	
		5892900	A	1999-04-06	Ginter et al., Karl	
		5903261		1999-05-11	Walsh, Bruce E., et al.	
		5907597		1999-05-25	Mark	
		5946446		1999-08-31	Yanagihara, Naofumi	
		5956729		1999-09-21	Goetz et al.	
		5959690		1999-09-28	Toebes VIII, John A., et al.	
		5999812	A	1999-12-07	Himsworth, Winston E.	
		6031622	A	2000-02-29	Ristow, Allan et al.	
		6038257	A	2000-03-14	Brusewitz, Harald et al.	
		6044469	A	2000-03-28	Horstmann, Cay S.	
		6046778	A	2000-04-04	Nonomura;, Tomoyuki et al.	
		6047100		2000-04-04	McLaren, David L.	
		6058240		2000-05-02	McLaren, David L.	
		6064794	A	2000-05-16	McLaren, David et al.	
		6065050		2000-05-16	DeMoney	
		6018611		2000-06-25	Nogami et al.	
		6079566		2000-06-27	Eleftheriadis et al.	
		6097877	A	2000-08-01	Katayama, Hironobu et al.	
		6141754	A	2000-10-31	Choy, David	
		6155840	A	2000-12-05	Sallette, Alfred V.	
		6169242		2001-01-02	Fay, Tudor C., et al.	
		6175921	B1	2001-01-16	Rosen, Sholom	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		6195388	B1	2001-02-27	Choi, Jae G., et al.	
		6204883	B1	2001-03-20	Tsukagoshi, I	
		6222981		2001-04-24	Rijckaert, Albert M.	
		6282653	B1	2001-08-28	Berstis, Viktors et al.	
		6289450	B1	2001-09-11	Pensak, David A., et al.	
		6292621		2001-09-18	Tanaka et al.	
		6308005	B1	2001-10-23	Ando, Hideo et al.	
		6330286	B1	2001-12-11	Lyons, P. W., et al.	
		6374144		2002-04-16	Viviani et al.	
		6389218		2002-05-14	Gordon et al.	
		6389473	B1	2002-05-14	Carmel, Sharon et al.	
		6395969		2002-05-28	Fuhrer	
		6397230	B1	2002-05-28	Carmel, Sharon et al.	
		6418270		2002-07-09	Steenhof, Frits A., et al.	
		6449719	B1	2002-09-10	Baker, Brian	
		6466671	B1	2002-10-15	Maillard et al., Michel	
		6466733		2002-10-15	Kim, Tae-eung	
		6510513	B1	2003-01-21	Danieli, Damon V.	
		6510554	B1	2003-01-21	Gordon, Donald F., et al.	
		6621979	B1	2003-09-16	Eerenberg, O. et al.	
		6658056	B1	2003-12-02	Duruöz, Cem I., et al.	
		6665835		2003-12-16	Gutfreund, Steven et al.	
		6671408		2003-12-30	Kaku, Junya	
		6697568		2004-02-24	Kaku, Junya	
		6725281		2004-04-20	Zintel el a.	
		6771703	B1	2004-08-03	Oguz, Seyfullah H., et al.	
		6807306	B1	2004-10-19	Girgensohn, Andreas et al.	
		6810031	B1	2004-10-26	Hegde, Manju et al.	
		6810389	B1	2004-10-26	Meyer, Marc A.	
		6819394	B1	2004-11-16	Nomura, Toshio et al.	
		6850252	B1	2005-02-01	Hoffberg, Steven M.	
		6856997	B2	2005-02-15	Lee et al.	
		6859496	B1	2005-02-22	Boroczky, Lilla et al.	
		6917652		2005-07-12	Lyu, Hwa Young	
		6944621	B1	2005-09-13	Collart, Todd R.	
		6944629	B1	2005-09-13	Shioi et ala.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		6956901	B2	2005-10-18	Boroczky, Lilla et al.	
		6965724		2005-11-15	Boccon-Gibod et al.	
		6965993	B2	2005-11-15	Baker, Brian	
		6985588	B1	2006-01-10	Glick, B. J., et al.	
		6988144		2006-01-17	Luken et al.	
		7007170	B2	2006-02-28	Morten, Glenn	
		7023924		2006-04-04	Keller et al.	
		7043473	B1	2006-05-09	Rassool, Reza et al.	
		7127155		2006-10-24	Ando et al.	
		7150045	B2	2006-12-12	Koelle, Katharina et al.	
		7151832	B1	2006-12-19	Fetkovich, John et al.	
		7151833	B2	2006-12-19	Candelore, Brant et al.	
		7165175	B1	2007-01-16	Kollmyer, Brad et al.	
		7185363	B1	2007-02-27	Narin, Attila et al.	
		7197234	B1	2007-03-27	Chatterton, Geoff	
		7209892		2007-04-24	Galuten et al.	
		7231132		2007-06-12	Davenport, William	
		7237061	B1	2007-06-26	Boic	
		7242772	B1	2007-07-10	Tehranchi, Babak	
		7328345	B2	2008-02-05	Morten, Glenn et al.	
		7330875		2008-02-12	Parasnis et al.	
		7340528	B2	2008-03-04	Noblecourt et al.	
		7349886	B2	2008-03-25	Morten, Glenn et al.	
		7356143	B2	2008-04-08	Morten, Glenn A.	
		7356245		2008-04-08	Belknap et al.	
		7366788		2008-04-29	Jones et al.	
		7376831	B2	2008-05-20	Kollmyer, Brad et al.	
		7406174	B2	2008-07-29	Palmer, Tomas E.	
		7421411	B2	2008-09-02	Kontio, Markku et al.	
		7457359	B2	2008-11-25	Mabey, D. L., et al.	
		7472280	B2	2008-12-30	Giobbi, John J.	
		7478325	B2	2009-01-13	Foehr, Oliver H.	
		7484103	B2	2009-01-27	Woo, Je-Hak et al.	
		7493018	B2	2009-02-17	Kim	
		7499938	B2	2009-03-03	Collart, Todd	
		7526450	B2	2009-04-28	Hughes, David A., et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		7594271	B2	2009-09-22	Zhuk, Oscar et al.	
		7610365	B1	2009-10-27	Kraft, Reiner et al.	
		7640435	B2	2009-12-29	Morten, Glenn A.	
		7689510	B2	2010-03-30	Lamkin, Allan B., et al.	
		7720352	B2	2010-05-18	Belknap, William R., et al.	
		7747853	B2	2010-06-29	Candelore et al.	
		7761892	B2	2010-07-20	Ellis, Michael D., et al.	
		7779097	B2	2010-08-17	Lamkin, Allan B., et al.	
		7817608	B2	2010-10-19	Rassool, Reza et al.	
		7869691	B2	2011-01-11	Kelly, Declan P., et al.	
		7962942	B1	2011-06-14	Craner, Michael L.	
		7974714	B2	2011-07-05	Hoffberg, Steven M.	
		7991156	B1	2011-08-02	Miller, Eric	
		8023562	B2	2011-09-20	Zheludkov, Alexander et al.	
		8046453	B2	2011-10-25	Olaiya, Oladipupo	
		8054880	B2	2011-11-08	Yu, Guoyao et al.	
		8065708	B1	2011-11-22	Smyth, Aidan J., et al.	
		8069260	B2	2011-11-29	Speicher, Ashley C., et al.	
		8201264	B2	2012-06-12	Grab, ERIC et al.	
		8225061	B2	2012-07-17	Greenebaum, Kenneth	
		8233768	B2	2012-07-31	Soroushian, K et al.	
		8249168	B2	2012-08-21	Graves, Hans W.	
		8261356	B2	2012-09-04	Choi, Bum S., et al.	
		8265168	B1	2012-09-11	Masterson, Anthony et al.	
		8270473	B2	2012-09-18	Chen, William et al.	
		8270819	B2	2012-09-18	Vannier, Eric	
		8289338	B2	2012-10-16	Priyadarshi, Shaiwal et al.	
		8291460	B1	2012-10-16	Peacock, Gavin	
		8296434	B1	2012-10-23	Miller, Kevin C., et al.	
		8311115	B2	2012-11-13	Gu, Chuang et al.	
		8321556	B1	2012-11-27	Chatterjee, Manjirnath et al.	
		8386621	B2	2013-02-26	Park, Anthony N.	
		8401900	B2	2013-03-19	Cansler, James L., et al.	
		8412841	B1	2013-04-02	Swaminathan et al.	
		8452110	B2	2013-05-28	Shoham, Tamar et al.	
		8456380	B2	2013-06-04	Pagan, William G.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		8472792	B2	2013-06-25	Butt, Abou U.	
		8472792		2013-06-25	Ahsan Butt et al.	
		8473630	B1	2013-06-25	Galligan et al.	
		8510303		2013-08-13	Soroushian, Kourosh et al.	
		8510404	B2	2013-08-13	Carmel, Sharon et al.	
		8515265	B2	2013-08-20	Kwon, O-Hoon et al.	
		8516529	B2	2013-08-20	Lajoie, Michael L., et al.	
		8606069	B2	2013-12-10	Okubo, Masafumi et al.	
		8640166	B1	2014-01-28	Craner et al.	
		8681866	B1	2014-03-25	Jia, Wei	
		8726264	B1	2014-05-13	Allen, Nicholas et al.	
		8774609	B2	2014-07-08	Drake, Edward C., et al.	
		8781122		2014-07-15	Chan, Francis Y., et al.	
		RE45052		2014-07-29	Li, Adam	
		8805109	B2	2014-08-12	Shoham, Tamar et al.	
		8806188		2014-08-12	Braness, Jason et al.	
		8843586	B2	2014-09-23	Pantos, Roger et al.	
		8908984	B2	2014-12-09	Shoham, Tamar et al.	
		8909922	B2	2014-12-09	Kiefer, Michael G., et al.	
		8914534	B2	2014-12-16	Braness, Jason et al.	
		8914836	B2	2014-12-16	Shivadas, Abhishek et al.	
		8918636	B2	2014-12-23	Kiefer, MIchael	
		8918908		2014-12-23	Ziskind, Ben et al.	
		8997161		2015-03-31	Priyadarshi, Shaiwal et al.	
		8997254		2015-03-31	Amidei, William et al.	
		9014471	B2	2015-04-21	Shoham, Tamar et al.	
		9025659	B2	2015-05-05	Soroushian, Kourosh et al.	
		9042670	B2	2015-05-26	Carmel et al.	
		9094737	B2	2015-07-28	Shivadas, Abhishek et al.	
		9124773	B2	2015-09-01	Chan, Francis Y., et al.	
		9184920		2015-11-10	Grab, Eric W., et al.	
		9191457		2015-11-17	Van der Schaar, Auke S.	
		9197685		2015-11-24	Soroushian, Kourosh et al.	
		9210481		2015-12-08	Braness, Jason et al.	
		9247311		2016-01-26	Kiefer, Michael G.	
		9247312		2016-01-26	Braness, Jason et al.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		9247317		2016-01-26	Shivadas, Abhishek et al.	
		9264475		2016-02-16	Shivadas et al., Abhishek	
		9313510		2016-04-12	Shivadas et al., Abhishek	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code [1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		20010030710	A1	2001-10-18	Werner	
		20010036355	A1	2001-11-01	Kelly, Declan P., et al.	
		20010046299	A1	2001-11-29	Wasilewski et al.	
		20010053222	A1	2001-12-20	Wakao, Satoru e.	
		20020026560	A1	2002-02-28	Jordan, Kevin M., et al.	
		20020034252	A1	2002-03-21	Owen et al.	
		20020051494	A1	2002-05-02	Yamaguchi et al.	
		20020057898	A1	2002-05-16	Normile, James O.	
		20020062313		2002-05-23	Lee et al.	
		20020076112	A1	2002-06-20	Devara, Kavitha V.	
		20020087569	A1	2002-07-04	Fischer, Uwe et al.	
		20020091665		2002-07-11	Van Beek et al., Petrus	
		20020093571	A1	2002-07-18	Hyodo, Manabu	
		20020110193	A1	2002-08-15	Yoo et al.	
		20020116481	A1	2002-08-22	Lee, Raymond W.	
		20020118953	A1	2002-08-29	Kim, Jae-Hyun	
		20020120934	A1	2002-08-29	Abrahams et al.	
		20020136298	A1	2002-09-26	Anantharamu et al.	
		20020143413		2002-10-03	Fay, Todor J., et al.	
		20020143547		2002-10-03	Fay, Todor J., et al.	
		20020147980	A1	2002-10-10	Satoda	
		20020159598	A1	2002-10-31	Rubinstein et al., Itzhak	
		20020161462	A1	2002-10-31	Fay, Todor J.	
		20020161462		2002-10-31	Fay, Todor J., et al.	
		20020180929		2002-12-05	Schwartz et al.	
		20020180929	A1	2002-12-05	Tseng, Scheffer et al.	
		20020184159		2002-12-05	Tayadon et al.	
		20020191112	A1	2002-12-19	Akiyoshi, Kozo et al.	
		20020191959	A1	2002-12-19	Lin, Shu et al.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20020191960		2002-12-19	Fujinami et al.	
		20030001964	A1	2003-01-02	Masukura, Koichi et al.	
		20030002578	A1	2003-01-02	Tsukagoshi, Ikuo et al.	
		20030005442	A1	2003-01-02	Brodersen et al.	
		20030021296	A1	2003-01-30	Wee, Susie J., et al.	
		20030031178	A1	2003-02-13	Haeri, Ali e.	
		20030035488	A1	2003-02-20	Barrau, Eric	
		20030035545	A1	2003-02-20	Jiang, S.	
		20030035546	A1	2003-02-20	Jiang, S. S., et al.	
		20030041257	A1	2003-02-27	Wee, Susie J.	
		20030061305	A1	2003-03-27	Copley, Devon et al.	
		20030061369	A1	2003-03-27	Aksu, Emre et al.	
		20030065777	A1	2003-04-03	Mattila, Marko et al.	
		20030078930	A1	2003-04-24	Surcouf et al.	
		20030093799	A1	2003-05-15	Kauffman et al., Marc	
		20030123855	A1	2003-07-03	Okada, Tomoyuki et al.	
		20030128296	A1	2003-07-10	Lee, Chulhee	
		20030133506	A	2003-07-17	Haneda, T.	
		20030152370	A1	2003-08-14	Otomo, Hitoshi et al.	
		20030163824	A1	2003-08-28	Gordon, Donald et al.	
		20030165328		2003-09-04	Grecia, William	
		20030174844	A1	2003-09-18	Candelore, Brant L.	
		20030185302		2003-10-02	Abrams, Thomas A.	
		20030185542	A1	2003-10-02	McVeigh et al., Jeffrey	
		20030206558		2003-11-06	Parkkinen et al.	
		20030216922	A1	2003-11-20	Gonzales, Cesar et al.	
		20030229900	A1	2003-12-11	Reisman, Richard	
		20030231863	A1	2003-12-18	Eerenberg, O. et al.	
		20030231867	A1	2003-12-18	Gates, M. e.	
		20030233464	A1	2003-12-18	Walpole et al.	
		20030236836	A1	2003-12-25	Borthwick, Ernest M.	
		20030236907	A1	2003-12-25	Stewart, James et al.	
		20040006701		2004-01-08	Kresina, Roman	
		20040021684		2004-02-05	Millner	
		20040024688	A1	2004-02-05	Bi, Depeng et al.	
		20040025180	A1	2004-02-05	Begeja, Lee et al.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20040031058	A1	2004-02-12	Reisman, Richard	
		20040039916	A1	2004-02-26	Aldis, David et al.	
		20040047614		2004-03-11	Green	
		20040052501		2004-03-18	Tam, Eddy C.	
		20040071453	A1	2004-04-15	Valderas, Harold M.	
		20040081333	A1	2004-04-29	Grab, E. W.	
		20040081434	A1	2004-04-29	Jung, Kil-Soo et al.	
		20040093618	A1	2004-05-13	Baldwin, James et al.	
		20040105549	A1	2004-06-03	Suzuki, K et al.	
		20040114687		2004-06-17	Ferris et al.	
		20040117347	A1	2004-06-17	Seo et al.	
		20040136698	A1	2004-07-15	Mock, Wayne E.	
		20040139335	A1	2004-07-15	Diamand, Joseph et al.	
		20040143760		2004-07-22	Alkove et al.	
		20040146276		2004-07-29	Ogawa, Hideaki	
		20040158878	A1	2004-08-12	Ratnakar, Viresh et al.	
		20040184534	A1	2004-09-23	Wang, Albert S.	
		20040202320	A1	2004-10-14	Amini, Lisa D., et al.	
		20040217971	A1	2004-11-04	Kim, H	
		20040255115	A1	2004-12-16	DeMello, Marcoet al.	
		20040255236	A1	2004-12-16	Collart, Todd R.	
		20050015797	A1	2005-01-20	Noblecourt et al.	
		20050038826	A1	2005-02-17	Bae, Dae-gyu et al.	
		20050055399		2005-03-10	Savchuk	
		20050071280	A1	2005-03-31	Irwin et al., Scott A.	
		20050108320	A1	2005-05-19	Lord, Robert D.	
		20050114896	A1	2005-05-26	Hug, Joshua D.	
		20050149450	A1	2005-07-07	Stefik, Mark J., et al.	
		20050180641	A1	2005-08-18	Clark	
		20050183120	A1	2005-08-18	Jain, Saurabh et al.	
		20050193070	A1	2005-09-01	Brown, Michael et al.	
		20050193322	A1	2005-09-01	Lamkin, Allan B., et al.	
		20050196147	A1	2005-09-08	Seo, Kang S., et al.	
		20050204289	A1	2005-09-15	Mohammed et al.	
		20050207442	A1	2005-09-22	Zoest et al.	
		20050207578	A1	2005-09-22	Matsuyama et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20050254508	A1	2005-11-17	Aksu, Emre B., et al.	
		20050273695	A1	2005-12-08	Schnurr, Jeffrey R.	
		20050275656	A1	2005-12-15	Corbin, Toby et al.	
		20060026294	A1	2006-02-02	Virdi, Gurpratap et al.	
		20060036549	A1	2006-02-16	Wu, Bo	
		20060037057	A1	2006-02-16	Xu, Shugong	
		20060052095	A1	2006-03-09	Vazvan, Behruz	
		20060053080	A1	2006-03-09	Edmonson et al., Brad	
		20060064605	A1	2006-03-23	Giobbi, John J.	
		20060078301	A1	2006-04-13	Ikeda, Wataru et al.	
		20060093320	A1	2006-05-04	Hallberg, Bryan et al.	
		2006120378	A1	2006-06-08	Usuki, Izumi e.	
		20060129909	A1	2006-06-15	Butt, Abou U., et al.	
		20060168639	A1	2006-07-27	Gan, Liang et al.	
		20060173887	A1	2006-08-03	Breitfeld, Volkmar et al.	
		20060181965	A1	2006-08-17	Collart, Todd R.	
		20060235880	A1	2006-10-19	Qian, R.	
		20060245727	A1	2006-11-02	Nakano, Hiroshi et al.	
		20060259588	A1	2006-11-16	Lerman, David et al.	
		20060263056	A1	2006-11-23	Lin, Shu et al.	
		20060267986	A1	2006-11-30	Bae, Soo-Kang	
		20060274835		2006-12-07	Hamilton et al.	
		20060294164	A1	2006-12-28	Armangau et al.	
		20070005333	A1	2007-01-04	Setiohardjo et al.	
		20070031110	A1	2007-02-08	Rijckaert, Albert M.	
		20070044010	A1	2007-02-22	Sull, Sanghoon et al.,	
		20070047901	A1	2007-03-01	Ando, Hideo et al.	
		20070053513	A1	2007-03-08	Hoffberg, Steven M.	
		20070058928	A1	2007-03-15	Naito, Hitoshi et al.	
		20070083617	A1	2007-04-12	Chakrabarti, A et al.	
		20070086528	A1	2007-04-19	Mauchly, J. W., et al.	
		20070100757	A1	2007-05-03	Rhoads, Geoffrey B.	
		20070133603	A1	2007-06-14	Weaver, Timothy H.	
		20070136817	A1	2007-06-14	Nguyen, Binh	
		20070140647	A1	2007-06-21	Kusunoki et al.	
		20070154165	A1	2007-07-05	Hemmeryckx-	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

					Deleersnijder et al.	
		20070168541	A1	2007-07-19	Gupta, Manish et al.	
		20070168542	A1	2007-07-19	Gupta, Manish et al.	
		20070178933	A1	2007-08-02	Nelson, Joakim	
		20070180125	A1	2007-08-02	Knowles, Michael et al.	
		20070185982	A1	2007-08-09	Nakanowatari et al.	
		20070192810	A1	2007-08-16	Pritchett et al.	
		20070217339	A1	2007-09-20	Zhao, Yun	
		20070217759	A1	2007-09-20	Dodd, Michael D.	
		20070234391	A1	2007-10-04	Hunter et al.	
		20070239839	A1	2007-10-11	Buday, Michael et al.	
		20070255940	A1	2007-11-01	Ueno, T.	
		20070271317	A1	2007-11-22	Carmel et al.	
		20070271385	A1	2007-11-22	Davis, Andrew T., et al.	
		20070274679	A1	2007-11-29	Yahata, Hiroshi et al.	
		20070277219	A1	2007-11-29	Toebes, John et al.	
		20070277234	A1	2007-11-29	Bessonov et al.	
		20070280298	A1	2007-12-06	Hearn, John P., et al.	
		20070288745	A1	2007-12-13	Kwan, Nang K.	
		20070292107	A1	2007-12-20	Yahata, Hiroshi et al.	
		20070297422	A1	2007-12-27	Matsuo, Hideki et al.	
		20080005175	A1	2008-01-03	Bourke, A. et al.	
		20080008455	A1	2008-01-10	De Lange et al.	
		20080043832	A1	2008-02-21	Barkley, Warren et al.	
		20080066099	A1	2008-03-13	Brodersen et al.	
		20080066181	A1	2008-03-13	Haveson, Ryan et al.	
		20080086456	A1	2008-04-10	Rasanen, K. et al.	
		20080086747	A1	2008-04-10	Rasanen, Kirsten et al.	
		20080101466	A1	2008-05-01	Swenson, Erik R., et al.	
		20080104633	A1	2008-05-01	Noblecourt et al.	
		20080120330	A1	2008-05-22	Reed, O. et al.	
		20080120342	A1	2008-05-22	Reed, Ogden C., et al.	
		20080120389	A1	2008-05-22	Bassali, Harpal et al.	
		20080126248	A1	2008-05-29	Lee, Seung-Jae et al.	
		20080137541	A1	2008-06-12	Agarwal, Kaitki e.	
		20080137736	A1	2008-06-12	Richardson et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20080151817	A1	2008-06-26	Fitchett, Jeffrey W.	
		20080172441	A1	2008-07-17	Speicher, Ashley et al.	
		20080187283	A1	2008-08-07	Takahashi, Eduardo S.	
		20080192818	A1	2008-08-14	DiPietro, Donald et al.	
		20080195664	A1	2008-08-14	Maharajh, Kavi et al.	
		20080195744	A1	2008-08-14	Bowra, Todd et al.	
		20080205860	A1	2008-08-28	Holtman, Koen J.	
		20080240144	A1	2008-10-02	Kruse, David et al.	
		20080256105	A1	2008-10-16	Nogawa, Hiroshi et al.	
		20080263354	A1	2008-10-23	Beuque	
		20080279535	A1	2008-11-13	Haque et al.	
		20080298358	A1	2008-12-04	John, Sunil S., et al.	
		20080310454	A1	2008-12-18	Bellwood et al.	
		20080310496	A1	2008-12-18	Fang, Nicholas J.	
		20090031220	A1	2009-01-29	Tranchant, Julien et al.	
		20090037959	A1	2009-02-05	Suh, Jong Y., et al.	
		20090048852	A1	2009-02-19	Burns, Gregory et al.	
		20090055546	A1	2009-02-26	Jung, Edward K., et al.	
		20090060452	A1	2009-03-05	Chaudhri, Imran A.	
		20090066839	A1	2009-03-12	Jung, Kil-Soo et al.	
		20090097644	A1	2009-04-16	Haruki, K.	
		20090132599	A1	2009-05-21	Soroushian, K. et al.	
		20090132721	A1	2009-05-21	Soroushian et al.	
		20090132824	A1	2009-05-21	Terada, Masayuki et al.	
		20090136216	A1	2009-05-28	Soroushian	
		20090150557	A1	2009-06-11	Wormley et al.	
		20090168795	A1	2009-07-02	Segel et al.	
		20090169181	A1	2009-07-02	Priyadarshi, S. et al.	
		20090172201	A1	2009-07-02	Carmel et al.	
		20090178090	A1	2009-07-09	Oztaskent, Ant	
		20090196139	A1	2009-08-06	Bates, Allen K., et al.	
		20090201988	A1	2009-08-13	Gazier, Michael et al.	
		20090217317	A1	2009-08-27	White et al.	
		20090226148	A1	2009-09-10	Nesvadba, Jan et al.	
		20090228395	A1	2009-09-10	Wegner, Susan et al.	
		20090290706	A1	2009-11-26	Amini, Lisa D., et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20090290708	A1	2009-11-26	Schneider et al.	
		20090293116	A1	2009-11-26	DeMello, Marco A.	
		20090303241	A1	2009-12-10	Priyadarshi, S et al.	
		20090307258	A1	2009-12-10	Priyadarshi et al.	
		20090307258	A1	2009-12-10	Priyadarshi, S et al.	
		20090307267	A1	2009-12-10	Chen, Danny Y., et al.	
		20090310933	A1	2009-12-17	Lee, Victor S.	
		20090313544	A1	2009-12-17	Wood, Policarpo et al.	
		20090313564	A1	2009-12-17	Rottler, Benjamin et al.	
		20090316783	A1	2009-12-24	Au, Oscar C., et al.	
		20090328124	A1	2009-12-31	Khouzam, Gilles et al.	
		20090328228	A1	2009-12-31	Schnell, Patrik	
		20100040351	A1	2010-02-18	Toma, Tadamasa et al.	
		20100057928	A1	2010-03-04	Kapoor, Abhinav et al	
		20100058405	A1	2010-03-04	Ramakrishnan et al.	
		20100074324	A1	2010-03-25	Qian, Zhebin et al.	
		20100074333	A1	2010-03-25	Au, Oscar C., et al.	
		20100083322	A1	2010-04-01	Rouse, Alan	
		20100094969	A1	2010-04-15	Zuckerman, Gal et al.	
		20100095121	A1	2010-04-15	Shetty, Pritham et al.	
		20100106968	A1	2010-04-29	Mori et al.	
		20100107260	A1	2010-04-29	Orrell, Martin et al.	
		20100111192	A1	2010-05-06	Graves, Hans W.	
		20100138903	A1	2010-06-03	Medvinsky, Alexander	
		20100142917	A1	2010-06-10	Isaji, Yutaka	
		20100158109	A1	2010-06-24	Dahlby, Joshua et al.	
		20100161825	A1	2010-06-24	Ronca, David R., et al.	
		20100166060	A1	2010-07-01	Ezure, Tomohiro et al.	
		20100186092	A1	2010-07-22	Takechi, Hideaki et al.	
		20100189183	A1	2010-07-29	Gu, Chuang et al.	
		20100189183	A1	2010-07-29	Gu, C. et al.	
		20100228795	A1	2010-09-09	Hahn, Judah G.	
		20100235472	A1	2010-09-16	Sood, Vishal et al.	
		20100250532	A1	2010-09-30	Soroushian, K. et al.	
		20100290761	A1	2010-11-18	Drake, Edward et al.	
		20100299522	A1	2010-11-25	Khambete et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20100306249	A1	2010-12-02	Hill, James et al.	
		20100313225	A1	2010-12-09	Cholas, Chris et al.	
		20100313226	A1	2010-12-09	Cholas, Chris et al.	
		20100319014	A1	2010-12-16	Lockett, David et al.	
		20100319017	A1	2010-12-16	Cook, Michael	
		20100332595	A1	2010-12-30	Fullagar, David et al.	
		20110002381	A1	2011-01-06	Yang, Kyeong H., et al.	
		20110016225	A1	2011-01-20	Park, Anthony N.	
		20110047209	A1	2011-02-24	Lindholm, Fredrik et al.	
		20110055585	A1	2011-03-03	Lee, Kok-Wah	
		20110060808	A1	2011-03-10	Martin, John J., et al.	
		20110066673	A1	2011-03-17	Outlaw, B.	
		20110067057	A1	2011-03-17	Karaoguz et al.	
		20110078440	A1	2011-03-31	Feng, Chen H., et al.	
		20110080940	A1	2011-04-07	Bocharov, John A.	
		20110082924	A1	2011-04-07	Gopalakrishnan	
		20110096828	A1	2011-04-28	Chen, Ying et al.	
		20110107379	A1	2011-05-05	Lajoie, Michael et al.	
		20110116772	A1	2011-05-19	Kwon, O-Hoon et al.	
		20110126191	A1	2011-05-26	Hughes, Richard et al.	
		20110129011	A1	2011-06-02	Cilli, Bruce R., et al.	
		20110135090	A1	2011-06-09	Chan, Francis Yee-dug	
		20110138018	A1	2011-06-09	Raveendran et al.	
		20110142415	A1	2011-06-16	Rhyu, Sung-Ryeul	
		20110145726	A1	2011-06-16	Wei, Eugene C., et al.	
		20110149753	A1	2011-06-23	Bapst, Mark et al.	
		20110150100	A1	2011-06-23	Abadir, Essam	
		20110153785	A1	2011-06-23	Minborg, Per-Åke et al.	
		20110153835	A1	2011-06-23	Rimac, Ivica et al.	
		20110184738	A1	2011-07-28	Kalisky, Dror et al.	
		20110191439	A1	2011-08-04	Dazzi, Alain et al.	
		20110191803	A1	2011-08-04	Baldwin, James et al.	
		20110197237	A1	2011-08-11	Turner, Steven E.	
		20110213827	A1	2011-09-01	Kaspar, Dominik et al.	
		20110222786	A1	2011-09-15	Carmel, Sharon et al.	
		20110225302	A1	2011-09-15	Park, Anthony N., et al.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20110225315	A1	2011-09-15	Wexler, Yosef et al.	
		20110225417	A1	2011-09-15	Maharajh, Kavi et al.	
		20110239078	A1	2011-09-29	Luby, Michael G., et al.	
		20110246657	A1	2011-10-06	Glow, Andy	
		20110246659	A1	2011-10-06	Bouazizi, Imed	
		20110252118	A1	2011-10-13	Pantos, Roger et al.	
		20110264530	A1	2011-10-27	Santangelo et al.	
		20110268178	A1	2011-11-03	Park, Anthony N.	
		20110276695	A1	2011-11-10	Maldaner et al.	
		20110291723	A1	2011-12-01	Hashimoto	
		2011291723	A1	2011-12-01	Hashimoto, Kiyoshi	
		20110302319	A1	2011-12-08	Ha, Ho-jin et al.	
		20110305273	A1	2011-12-15	He, Yaming et al.	
		20110314176	A1	2011-12-22	Frojdh, Per et al.	
		20110314500	A1	2011-12-22	Gordon, Donald	
		20120005368	A1	2012-01-05	Knittle et al.	
		20120023251	A1	2012-01-26	Pyle, Harry et al.	
		20120036365	A1	2012-02-09	Kyslov, Fedir Y., et al.	
		20120036544	A1	2012-02-09	Chen, Ying et al.	
		20120093214	A1	2012-04-19	Urbach, Julian	
		20120124191	A1	2012-05-17	Lyon, Barrett G.	
		20120137336	A1	2012-05-31	Applegate, David et al.	
		20120144117	A1	2012-06-07	Weare et al.	
		20120144445	A1	2012-06-07	Bonta, Jeffrey D., et al.	
		20120166633	A1	2012-06-28	Baumback, Mark et al.	
		20120170642	A1	2012-07-05	Braness, J et al.	
		20120170643	A1	2012-07-05	Soroushian, K et al.	
		20120170906	A1	2012-07-05	Soroushian, K et al.	
		20120170915	A1	2012-07-05	Braness, J et al.	
		20120173751	A1	2012-07-05	Braness, J et al.	
		20120177101	A1	2012-07-12	van der Schaar, S	
		20120179834	A1	2012-07-12	van der Schaar, S A.	
		20120201475	A1	2012-08-09	Carmel, Sharon et al.	
		20120201476	A1	2012-08-09	Carmel, Sharon et al.	
		20120233345	A1	2012-09-13	Hannuksela, Miska M.	
		20120240176	A1	2012-09-20	Ma, Kevin J.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20120254455	A1	2012-10-04	Adimatyam et al.	
		20120260277	A1	2012-10-11	Kosciewicz, Pawel	
		20120263434	A1	2012-10-18	Wainner, Warren et al.	
		20120265562	A1	2012-10-18	Daouk, Carine H., et al.	
		20120278496	A1	2012-11-01	Hsu, James K.	
		20120289147	A1	2012-11-15	Raleigh, Gregory et al.	
		20120294355	A1	2012-11-22	Holcomb et al.	
		20120297039	A1	2012-11-22	Acuna, Jorge D., et al.	
		20120307883	A1	2012-12-06	Graves, Hans W.	
		20120311094	A1	2012-12-06	Biderman, David et al.	
		20120314778	A1	2012-12-13	Salustri et al.	
		20130007223	A1	2013-01-03	Luby, Michael G., et al.	
		20130013730	A1	2013-01-10	Li, Ming et al.	
		20130019107		2013-01-17	Grab, E. et al.	
		20130019273	A1	2013-01-17	Ma, Kevin J., et al.	
		20130041808	A1	2013-02-14	Pham, Nathalie et al.	
		20130044821	A1	2013-02-21	Braness, Jason et al.	
		20130046849	A1	2013-02-21	Wolf, Ethan et al.	
		20130046902	A1	2013-02-21	Villegas Nuñez et al.	
		20130051554	A1	2013-02-28	Braness, Jason e.	
		20130054958	A1	2013-02-28	Braness, Jason et al.	
		20130055084	A1	2013-02-28	Soroushian et al.	
		20130058480	A1	2013-03-07	Ziskind, Ben et al.	
		20130061040	A1	2013-03-07	Kiefer, Michael et al.	
		20130061045	A1	2013-03-07	Kiefer, Michael et al.	
		20130061045	A1	2013-03-07	Kiefer, Michael et al.	
		20130064466	A1	2013-03-14	Carmel, Sharon et al.	
		20130094565	A1	2013-04-18	Yang, Lei et al.	
		20130097309	A1	2013-04-18	Ma, Kevin J., et al.	
		20130114944	A1	2013-05-09	Soroushian et al.	
		20130128962	A1	2013-05-23	Rajagopalan et al.	
		20130152767	A1	2013-06-20	Katz, Itamar et al.	
		20130166765	A1	2013-06-27	Kaufman, Matthew	
		20130166906	A1	2013-06-27	Swaminathan et al.	
		20130170764	A1	2013-07-04	Carmel, Sharon et al.	
		20130173513	A1	2013-07-04	Chu, David et al.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20130179199	A1	2013-07-11	Ziskind, Ben et al.	
		20130179992	A1	2013-07-11	Ziskind, Ben et al.	
		20130182952	A1	2013-07-18	Carmel, Sharon et al.	
		20130196292	A1	2013-08-01	Brennen, Forrest et al.	
		20130212228	A1	2013-08-15	Butler, Robert J.	
		20130223812	A1	2013-08-29	Rossi, Antonio	
		20130226578	A1	2013-08-29	Bolton, Jeff M., et al.	
		20130226635	A1	2013-08-29	Fisher, Michelle	
		20130311670	A1	2013-11-21	Tarbox, Brian J., et al.	
		20130329781	A1	2013-12-12	Su, Yeping et al.	
		20140003516	A1	2014-01-02	Soroushian, Kourosh	
		20140037620	A1	2014-02-06	Ferree, Sean M., et al.	
		20140052823	A1	2014-02-20	Gavade, Sameer et al.	
		20140059156	A1	2014-02-27	Freeman, II et al.	
		20140101722	A1	2014-04-10	Moore, Jonathan	
		20140119432	A1	2014-05-01	Wang et al.	
		20140140396	A1	2014-05-22	Wang, Zhou et al.	
		20140140417	A1	2014-05-22	Shaffer, Gary K., et al.	
		20140143301	A1	2014-05-22	Watson, Mark et al.	
		20140143431	A1	2014-05-22	Watson, Mark et al.	
		20140143440	A1	2014-05-22	Ramamurthy et al.	
		20140177734	A1	2014-06-26	Carmel, Sharon et al.	
		20140189065	A1	2014-07-03	van der Schaar et al.	
		20140201382	A1	2014-07-17	Shivadas et al.	
		20140211840	A1	2014-07-31	Butt, Abou U., et al.	
		20140211859	A1	2014-07-31	Carmel, Sharon et al.	
		20140241420	A1	2014-08-28	Orton-jay, Sam et al.	
		20140241421	A1	2014-08-28	Orton-jay, Sam et al.	
		20140250473	A1	2014-09-04	Braness, Jason et al.	
		20140258714	A1	2014-09-11	Grab, Eric W.	
		20140269927	A1	2014-09-18	Naletov, Ivan V., et al.	
		20140269936	A1	2014-09-18	Shivadas et al.	
		20140280763	A1	2014-09-18	Grab, Eric W., et al.	
		20140297804	A1	2014-10-02	Shivadas et al.	
		20140297881	A1	2014-10-02	Shivadas et al.	
		20140359678	A1	2014-12-04	Shivadas et al.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		20140359679	A1	2014-12-04	Shivadas et al.	
		20140359680	A1	2014-12-04	Shivadas et al.	
		2014355668	A1	2014-12-04	Shoham, Tamar et al.	
		20140376720	A1	2014-12-25	Chan, Francis Y., et al.	
		20150006662	A1	2015-01-01	Braness, Jason A.	
		20150026677	A1	2015-01-22	Stevens, Jerry et al.	
		2015049957	A1	2015-02-19	Shoham, Tamar et al.	
		20150063693	A1	2015-03-05	Carmel et al.	
		20150104153	A1	2015-04-16	Braness, Jason et al.	
		20150117836	A1	2015-04-30	Amidei, William et al.	
		20150117837	A1	2015-04-30	Amidei, William et al.	
		20150139419	A1	2015-05-21	Kiefer, Michael et al.	
		20150188758	A1	2015-07-02	Amidei, William et al.	
		20150188842	A1	2015-07-02	Amidei, William et al.	
		20150188921	A1	2015-07-02	Amidei, William et al.	
		20150189017	A1	2015-07-02	Amidei, William et al.	
		20150189373	A1	2015-07-02	Amidei, William et al.	
		20150334435	A1	2015-11-19	Shivadas et al.	
		20150373421	A1	2015-12-24	Chan, Francis Y.	
		20160070890	A1	2016-03-10	Grab et al., Eric W.	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Page, Column, Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2002013664	KR			Kim et al.		
		1995015660	WO	A1	1995-06-08	Birch et al.		
		08046902	JP	A	1996-02-16	Uchiumi et al.		
		8111842	JP	A	1996-04-30	Gaiguchi et al.		
		1996013121	WO		1996-05-02	McLaren, D.		
		1996163488	JP		1996-06-21	Hiroshi et al.		
		1996287613	JP	A	1996-11-01	Katayama		

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		757484	EP	A2	1997-02-05	Tsukagoshi et al.		
		09037225	JP	A	1997-02-07	Tsushima et al.		
		813167	EP	A2	1997-12-17	Ristow, Allan et al.		
		1169229	CN		1997-12-31	McLaren et al.		
		1997031445	WO	A3	1998-04-02	Carmel et al.		
		1999010836	WO	A1	1999-03-04	Daboosh, Tzur et al.		
		11164307	JP	A	1999-06-18	Sugiyama enji et al.		
		100221423	KR	B1	1999-06-28	Mishina Masamichu		
		1221284	CN	A	1999-06-30	Kim, J.		
		0936812	EP	A1	1999-08-18	Maillard et al.		
		11275576	JP	A	1999-10-08	Bun, Chun et al.		
		11328929	JP	A	1999-11-30	Ando Hideo et al.		
		1999065239	WO	A2	1999-12-16	Eerenberg nno et al.		
		1056273	EP	A2	2000-11-29	Cornelio ichael et al.		
		02001043668	JP	A	2001-02-16	Ishioka, Takayuki		
		2001031497	WO	A1	2001-05-03	Gonzalez, Ruben		
		2001050732	WO	A2	2001-07-12	Pintz, Sandro et al.		
		2001065762	WO	A2	2001-09-07	Platt, David et al.		
		2001346165	JP	A	2001-12-14	Okada et al.		
		2002001880	WO	A1	2002-01-03	Strothman et al.		
		2002008948	WO	A2	2002-01-31	Sull et al.		
		2002035832	WO	A2	2002-05-02	Davenport, William		
		2002037210	WO	A2	2002-05-10	Clark et al.		
		2002170363	JP	A	2002-06-14	Hideo, A. et al.		
		2002518898	JP	A	2002-06-25	Eerenberg et al.		
		2002054196	WO	A2	2002-07-11	Durand, Alain et al.		
		2002218384	JP	A	2002-08-02	Hyodo, Manabu		
		1020020064888	KR	A	2002-08-10	Gonzalez, Ruben		
		2003250113	JP	A	2003-09-05	Ogawa, Hideaki		
		2004013823	JP	A	2004-01-15	Yokoyama, Toru		
		1420580	EP	A1	2004-05-19	Schiller et al.		
		2004515941	JP	A	2004-05-27	Daven, Pet Will		
		2004172830	JP	A	2004-06-17	Takishima et al.		
		2004054247	WO	A1	2004-06-24	Gan, Liang et al.		
		2004187161	JP	A	2004-07-02	Hayashi et al.		
		2004234128	JP	A	2004-08-19	Fujisawa et al.		

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		2004097811	WO	A1	2004-11-11	Kim, Byung J., et al.		
		2004102571	WO	A1	2004-11-25	Rijckaert, Albert		
		2005027153	JP		2005-01-27	Kunieda, T et al.		
		2005080204	JP	A	2005-03-24	Watanabe, Junya		
		1553779	EP	A1	2005-07-13	Huetter, I. et al.		
		1723696	CN		2006-01-18	Shi, K		
		2006018843	WO	A2	2006-02-23	Carmel et al.		
		1657835	EP	A1	2006-05-17	Kisoda, Akira e.		

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on November 14, 2016 at or before 11:59 p.m. Pacific Time under the Rules of 37 C.F.R. 1.8.

/Katrina Lee/
Katrina Lee

Appl No.	: 14/970,412	Confirmation No. 5115
Applicant	: Sonic IP, Inc.	
Filed	: December 15, 2015	
Title	: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	
TC/A.U.	: 2434	
Examiner	: Abiy Getachew	
Docket No.	: D1-02359A.CON2	
Customer No.	: 71897	

INFORMATION DISCLOSURE STATEMENT § 1.97(c)

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2400 E. Katella, Suite 1050
Anaheim, CA 92806
November 14, 2016

Commissioner

In compliance with the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, and in accordance with the provisions in the MPEP §§ 609 and 707.05(b), enclosed is FORM PTO/SB/08A/B with a listing of references that are known to applicant. Copies of each of the references listed under "Foreign Patent Documents" are enclosed.

It is respectfully requested that these references be considered in the examination of this application and identified on the list of references cited on the patent issuing on this application. Applicant also requests that an initialed copy of said FORM PTO/SB/08A/B be entered in the application file, and returned to the Applicant with the next official communication from the Office in accordance with MPEP § 609.

The $180 processing fee will be paid via credit card. If there are any other fees due in connection with this filing, the Commissioner is authorized to charge Deposit Account 50-4407. Please show our docket number with any charge to the Deposit Account.

Respectfully submitted,

KPPB LLP

/Jason D. Wolfe/
Jason D. Wolfe
Registration No. 71,327
949.852.0000

JDW/kl
Enclosure(s)

DivX Exhibit 2005
Page 2005 - 187
IPR2020-00558

Electronic Patent Application Fee Transmittal

Application Number:	14970412
Filing Date:	15-Dec-2015
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Filer:	Jason Daniel Wolfe/Katrina Lee
Attorney Docket Number:	D1-02359A.CON2

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	27492784
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Jason Daniel Wolfe/Katrina Lee
Filer Authorized By:	Jason Daniel Wolfe
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	14-NOV-2016
Filing Date:	15-DEC-2015
Time Stamp:	23:08:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$180
RAM confirmation Number	111516INTEFSW23091400
Deposit Account	504407
Authorized User	Katrina Lee

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	02359ACON2part1sb08.pdf	275809 8c623299937d1f036741726a392d07171cc c72b4	no	20
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Foreign Reference	KR2002013664.pdf	145583 3c4796432bb3a0157bc71bc28150c4fe52fc bbff	no	3
Warnings:					
Information:					
3	Foreign Reference	WO9515660A1.pdf	7146072 d35599a27d1246ce23148e83928eaa3d5fc 387a7	no	53
Warnings:					
Information:					
4	Foreign Reference	JP08046902Awabstract.pdf	919262 35ccd4bce6753b7b239f70f209e5d2ae611 469dd	no	9
Warnings:					
Information:					
5	Foreign Reference	WO9613121.pdf	3818721 d7e3066b782e447ac481ad68912dbe7cc7a 5fbf7	no	31
Warnings:					
Information:					
6	Foreign Reference	JP08287613A.pdf	3684013 70bad7e2272b5d7ee2b860d7e8157aba49 e45086	no	21
Warnings:					

Information:					
7	Foreign Reference	EP757484A2.pdf	4978805 d6aee5a7f38e1d9c6234cf58e77ed91a88dca69d	no	35
Warnings:					
Information:					
8	Foreign Reference	JP09037225A.pdf	9870492 e936e58e79453aef787283ede4245ba87b5400f4	no	8
Warnings:					
Information:					
9	Foreign Reference	EP813167A2.pdf	1731585 180bc09745d3f4506eed2eaafba030f5c9eeafcc	no	15
Warnings:					
Information:					
10	Foreign Reference	CN1169229wabstract.pdf	5088669 85761837395e548cb4d09b833c43ce7a95773f05	no	27
Warnings:					
Information:					
11	Foreign Reference	WO9731445A3.pdf	2317689 df64ad8cd5ae74f054a415a774fcaca258852fd7	no	4
Warnings:					
Information:					
12	Foreign Reference	WO9910836A1.pdf	9403000 8cdd710dfb8dc518cfd99676ce8aded8395cd242	no	69
Warnings:					
Information:					
13	Foreign Reference	JP11164307Awabstract.pdf	1092342 e0b36830d67caa2cc17947eb4ad576fa6ebe13b5	no	9
Warnings:					
Information:					

14	Foreign Reference	KR100221423B1.pdf	5550565 6364136041dd40b3c4ba13166827fdbc46f4a69f	no	58
Warnings:					
Information:					
15	Foreign Reference	EP0936812A1.pdf	3293775 af34cfeabc2e1bb19dc3ef4cd250c80340662321	no	31
Warnings:					
Information:					
16	Foreign Reference	JP11275576Awabstract.pdf	3797890 57efb45660c7829b4a195cf8be8fcea23127a6ae	no	32
Warnings:					
Information:					
17	Foreign Reference	WO9965239A2.pdf	9192014 507a4aca2f4357a2149cc4fb04565df0219e6240	no	66
Warnings:					
Information:					
18	Foreign Reference	EP1056273A2.pdf	4829200 6c2db19ac38b244025d23808625a4ac2d48b34b1	no	29
Warnings:					
Information:					
19	Foreign Reference	JP2001043668Awabstract.pdf	4700277 dc427a0852c04fa0b799cdd6ce68e961574c55d7	no	8
Warnings:					
Information:					
20	Foreign Reference	WO0131497A1.pdf	10642186 90b415eaee3b43d1b207e2bb22f9144e5a4c2ac7	no	254
Warnings:					
Information:					

21	Foreign Reference	WO0150732A2.pdf	6203234 67dd1475913e8e0ac07058f9a70ad2df57c07970	no	37
Warnings:					
Information:					
22	Foreign Reference	WO0165762A2.pdf	1216543 59d1ae1748a3bbec180bb23ad0ae0bb8d63a66c5	no	17
Warnings:					
Information:					
23	Foreign Reference	WO0201880A1.pdf	1519752 96d56fe960a339392654fc75de421480e8e5bfa0	no	24
Warnings:					
Information:					
24	Foreign Reference	CN1221284Awabstract.pdf	7962504 24f10a492e8548606fe1adc263f1a548d660b72e	no	20
Warnings:					
Information:					
25	Foreign Reference	JP1996163488.pdf	6275949 21cee90298b7746083d390c7ddfa14194234ce6c	no	8
Warnings:					
Information:					
26	Foreign Reference	JP8111842A.pdf	9498320 a5c0cafa9a8a275b51455d13608eb96c3523bdd7	no	13
Warnings:					
Information:					
27	Foreign Reference	WO0208948A2.pdf	14049826 d18c3de53e53831bd4bb3c165a503af60c22590a	no	210
Warnings:					
Information:					

28	Foreign Reference	WO0235832A2.pdf	1087251 45314422704d609ce52379eb673a6e6375dc9e47	no	19
Warnings:					
Information:					
29	Foreign Reference	WO20237210A2.pdf	5727835 7b4e34be67a6ad30b094c0b27f5358760a35b200	no	45
Warnings:					
Information:					
30	Foreign Reference	JP2002518898Awabstract.pdf	7828464 f9250d425b9a260f8074efc0511fd24d43727f38	no	88
Warnings:					
Information:					
31	Foreign Reference	WO02054196A2.pdf	5906213 1954634fbf1d0a77d6f636674a7ad3c1c3833de9	no	34
Warnings:					
Information:					
32	Foreign Reference	JP2002218384Awabstract.pdf	7961866 4cd1a28126bdb6f4a7cc4db989497f54e2226a72	no	12
Warnings:					
Information:					
33	Foreign Reference	JP2004013823Awabstract.pdf	5078674 e3f5e6e9dc6300ca50d8776d20542c98a7c7c829	no	29
Warnings:					
Information:					
34	Foreign Reference	EP1420580A1.pdf	675536 6b8460b97d171b21f419148c2d85541535d5ef36	no	10
Warnings:					
Information:					

35	Foreign Reference	JP2004172830Awabstract.pdf	7018570 19fad76f7aaad5ce9b566074ad4c4b3ca6309ae6	no	10
Warnings:					
Information:					
36	Foreign Reference	WO2004054247A1.pdf	1006603 596d1ece29c8308a63041f13620983b217e5ee6a	no	21
Warnings:					
Information:					
37	Foreign Reference	JP2004187161Awabstract.pdf	15227822 b006d0125fac61128c3626179423f2a872c08cb6	no	16
Warnings:					
Information:					
38	Foreign Reference	JP2004234128Awabstract.pdf	9810243 eb4fdaf5638b11a22fe9ec37b5c55cb14f98e740	no	19
Warnings:					
Information:					
39	Foreign Reference	WO2004097811A1.pdf	3995998 a3e8cdbbc9d19954a5456518e66bc9ea39124f9d	no	28
Warnings:					
Information:					
40	Foreign Reference	WO2004102571A1.pdf	3425185 2368f7df5a9562c4b44a9db99df551ada2ace7c9	no	25
Warnings:					
Information:					
41	Foreign Reference	JP2005080204Awabstract.pdf	2837557 17d2b71e2ddbb9e582f22664ad9acf068b5fad46	no	22
Warnings:					
Information:					

42	Foreign Reference	EP1553779A1.pdf	1168446 bccae3a621b93d2283c0ab8109c12c655b0dbe74	no	29
Warnings:					
Information:					
43	Foreign Reference	WO2006018843A2.pdf	3835685 4118d8a5bfb18501ee0ec3610fc47fe5bc4ebc07	no	57
Warnings:					
Information:					
44	Foreign Reference	EP1657835A1.pdf	4443569 4d44314e8a23b354c4bf8d47b4f4c53579476d3d	no	27
Warnings:					
Information:					
45	Foreign Reference	KR1020020064888A.pdf	17928567 f089408039d212007fd4bb65d92144b043a92e5f	no	364
Warnings:					
Information:					
46	Foreign Reference	JP2004515941Awabstract.pdf	8255179 f9760586159b764c3cc0eefe1072059eddafd294	no	38
Warnings:					
Information:					
47	Foreign Reference	CN1723696Awabstract.pdf	5087779 08fc14dcbbed2dca96fe64ce8d977f0d870d23e0	no	17
Warnings:					
Information:					
48	Foreign Reference	JP2001346165Awabstract.pdf	23856639 e69366a8a6260ec5816b1cbddfbd00730cd8c1d5	no	28
Warnings:					
Information:					

49	Foreign Reference	JPH11328929A.pdf	6023920 57ed263712009c33e104401f64b6d1d76d10a5b0	no	56
Warnings:					
Information:					
50	Foreign Reference	jp200527153wabstract.pdf	8807783 c3f9e664a56fc52bd6152d5adcee495499370d46	no	43
Warnings:					
Information:					
51	Foreign Reference	JP2003250113Awabstract.pdf	11300451 7b856fd7ed29425d828ac5ad56dea3938845005b	no	6
Warnings:					
Information:					
52	Foreign Reference	jp2002170363wabstract.pdf	8765260 0dfe8d1206ebe35e123eb040970a0d8c14a99f4d	no	51
Warnings:					
Information:					
53	Transmittal Letter	02359acon2part1xtml.pdf	89848 a3ad0e2d4ea49e93050b70a7b145e14a386cadbd	no	2
Warnings:					
Information:					
54	Fee Worksheet (SB06)	fee-info.pdf	30944 58320a98112cf3d174be9c88a0397388ed338388	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	316385964		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2006524007	JP	A	2006-10-19	Kazuo et al.		
		1718074	EP	A1	2006-11-02	Kobayashi et al.		
		2006018843	WO	A3	2006-12-14	Carmel et al.		
		2007036666	JP	A	2007-02-08	Takemura, Susumu		
		2007044590	WO	A2	2007-04-19	Gonsalves, Carl et al.		
		2007174375	JP	A	2007-07-05	Toyoda, Yosuke et al.		
		100669616	KR	B1	2007-09-01	Park, Hyun Sang		
		2007235690	JP	A	2007-09-13	Naito, Hitoshi		
		2007113836	WO	A2	2007-10-11	Carmel et al.		
		2007535881	JP	A	2007-12-06	Major, Robert et al.		
		2008010275	WO	A1	2008-01-24	Hatano, Kouji		
		2008042242	WO	A2	2008-04-10	Starkenburg et al.		
		2008235999	JP	A	2008-10-02	Nishimoto et al.		
		2007113836	WO	A3	2008-11-13	Carmel, Sharon et al.		
		2008135932	WO	A2	2008-11-13	Hannuksela, Miska		
		2009065137	WO	A1	2009-05-22	Soroushian, K. et al.		
		2010060106	WO	A1	2010-05-27	Kohli, J et al.		
		2010080911	WO	A1	2010-07-15	Soroushian, K et al.		
		2010089962	WO	A1	2010-08-12	Hashimoto, Kiyoshi		
		2010122447	WO	A1	2010-10-28	Foo, Teck et al.		
		2010147878	WO	A1	2010-12-23	Furbeck et al.		
		2011042898	WO	A1	2011-04-14	Shoham, Tamar et al.		
		2011042900	WO	A1	2011-04-14	Shoham, Tamar et al.		
		2011068668	WO	A1	2011-06-09	Chan, F et al.		
		2011103364	WO	A1	2011-08-25	Thorwirth, Niels		
		2011132184	WO	A1	2011-10-27	Katz, Itamar et al.		
		2011135558	WO	A1	2011-11-03	Shoham, Tamar et al.		
		2012035533	WO	A2	2012-03-22	Shoham, Tamar et al.		
		2012035534	WO	A2	2012-03-22	Shoham, Tamar et al.		
		2012035534	WO	A3	2012-07-05	Shoham, Tamar et al.		
		2012094181	WO	A2	2012-07-12	Soroushian, K et al.		
		2012094189	WO	A1	2012-07-12	Braness, J et al.		

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		2012094171	WO	A1	2012-07-12	Braness, Jason et al.		
		2012035533	WO	A3	2012-08-09	Shoham, Tamar et al.		
		2486517	EP	A1	2012-08-15	Shoham, Tamar et al.		
		2486727	EP	A1	2012-08-15	Shoham, Tamar et al.		
		2507995	EP	A1	2012-10-10	Wood, Andrew et al.		
		2012162806	WO	A1	2012-12-06	Wang, Zhou et al.		
		2012171113	WO	A1	2012-12-20	Wang, Zhou et al.		
		2564354	EP	A1	2013-03-06	Shoham, Tamar et al.		
		2013030833	WO	A1	2013-03-07	Shoham, Tamar et al.		
		2013032518	WO	A2	2013-03-07	Kiefer, Michael et al.		
		2013103986	WO	A2	2013-07-11	Ziskind, Ben et al.		
		2616991	EP	A2	2013-07-24	Shoham, Tamar et al.		
		2617192	EP	A2	2013-07-24	Shoham, Tamar et al.		
		2013111126	WO	A3	2013-08-01	Carmel et al.		
		2013111126	WO	A2	2013-08-01	Shoham, Tamar et al.		
		2013032518	WO	A3	2013-09-06	Kiefer, Michael et al.		
		2013144942	WO	A1	2013-10-03	Shoham, Tamar et al.		
		2486727	EP	A4	2014-03-12	Shoham, Tamar et al.		
		2564354	EP	A4	2014-03-12	Shoham, Tamar et al.		
		2616991	EP	A0	2014-03-12	Shoham, Tamar et al.		
		2014506430	JP	A	2014-03-13	Blanes, Jason et al.		

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 10 82 1672

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,D	MATSUDA I ET AL: "Lossless re-encoding of JPEG images using block-adaptive intra prediction", 16TH EUROPEAN SIGNAL PROCESSING CONFERENCE, EUSIPCO 2008; 20080825 TO 20080829; LAUSANNE, FRANCE, EUROPEAN ASSOCIATION FOR SIGNAL PROCESSING, CH, 1 January 2008 (2008-01-01), pages 1-5, XP008166681, ISBN: 978-2-8399-0450-6	1-3,7, 9-21	INV. H04N19/124 H04N19/154 H04N19/172 H04N19/196 H04N19/40 H04N19/59 H04N19/593
Y	* abstract * * section [Block-adaptive intra prediction for quantized DCT coefficients] *	4-6,8	
A	US 2009/141990 A1 (PIGEON STEVEN [CA] ET AL COULOMBE STEPHANE [CA] ET AL) 4 June 2009 (2009-06-04) * paragraphs [0120] - [0196]; figures 2-4 *	1,4, 7-12, 15-17	
A	WO 2006/085301 A2 (MOBIXELL NETWORKS [IL]; SHATZ AMIR [IL]; HOUGUI YAIR [IL]; RAUDNITZ DA) 17 August 2006 (2006-08-17) * page 20, line 25 - page 24, line 5; figure 7 *	1,4, 7-12, 15-17	TECHNICAL FIELDS SEARCHED (IPC) H04N
Y	CHRISTOPOULOS C ET AL: "THE JPEG2000 STILL IMAGE CODING SYSTEM: AN OVERVIEW", IEEE TRANSACTIONS ON CONSUMER ELECTRONICS, IEEE SERVICE CENTER, NEW YORK, NY, US, vol. 46, no. 4, 1 November 2000 (2000-11-01), pages 1103-1127, XP001059899, ISSN: 0098-3063, DOI: 10.1109/30.920468 * section [III. Basic Architecture of the Standard] *	4-6,8	

-/--

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	30 January 2014	Georgiou, Georgia

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 202
IPR2020-00558

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 10 82 1672

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	HOUCHIN J S ET AL: "File format technology in JPEG 2000 enables flexible use of still and motion sequences", SIGNAL PROCESSING. IMAGE COMMUNICATION, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 17, no. 1, 1 January 2002 (2002-01-01), pages 131-144, XP004326803, ISSN: 0923-5965, DOI: 10.1016/S0923-5965(01)00023-6 * section [7 Extending the file format atchitecture to new application domains] * -----	12-14,16	
A	AMON P ET AL: "File Format for Scalable Video Coding", IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 17, no. 9, 1 September 2007 (2007-09-01), pages 1174-1185, XP011193013, ISSN: 1051-8215, DOI: 10.1109/TCSVT.2007.905521 * section [B. MP4 File Format] * -----	12-14,16	TECHNICAL FIELDS SEARCHED (IPC)
A	NOTEBAERT S ET AL: "Rate-controlled requantization transcoding for H.264/AVC video streams", PROCEEDINGS OF THE SPIE - THE INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING SPIE - THE INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING USA, vol. 7073, 2008, XP002719506, ISSN: 0277-786X * the whole document * -----	17-19	

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	30 January 2014	Georgiou, Georgia

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 203
IPR2020-00558

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 10 82 1672

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-01-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009141990 A1	04-06-2009	US 2009141990 A1	04-06-2009
		US 2009141992 A1	04-06-2009
		US 2013094778 A1	18-04-2013
		US 2014016875 A1	16-01-2014
WO 2006085301 A2	17-08-2006	US 2008196076 A1	14-08-2008
		WO 2006085301 A2	17-08-2006

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 11 77 4529

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	HEINZ H BAUSCHKE ET AL: "Recompression of JPEG Images by Requantization", IEEE TRANSACTIONS ON IMAGE PROCESSING, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 12, no. 7, 1 July 2003 (2003-07-01), XP011074411, ISSN: 1057-7149 * the whole document *	1-15	INV. G06K9/36 G06K9/46 H04N19/124 H04N19/154 H04N19/176 H04N19/192 H04N19/196 H04N19/40
X	US 6 850 650 B1 (BAUSCHKE HEINZ [CA] ET AL) 1 February 2005 (2005-02-01) * column 6, line 35 - column 8, line 49; figures 4-7 *	1-15	H04N19/60

TECHNICAL FIELDS SEARCHED (IPC)

H04N

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	31 January 2014	Georgiou, Georgia

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 205
IPR2020-00558

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 77 4529

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

31-01-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6850650 B1	01-02-2005	US 6850650 B1	01-02-2005
		US 2005111747 A1	26-05-2005

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on November 14, 2016 at or before 11:59 p.m. Pacific Time under the Rules of 37 C.F.R. 1.8.

/Katrina Lee/
Katrina Lee

Appl No.	: 14/970,412	Confirmation No. 5115
Applicant	: Sonic IP, Inc.	
Filed	: December 15, 2015	
Title	: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	
TC/A.U.	: 2434	
Examiner	: Abiy Getachew	
Docket No.	: D1-02359A.CON2	
Customer No.	: 71897	

INFORMATION DISCLOSURE STATEMENT § 1.97(c)

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2400 E. Katella, Suite 1050
Anaheim, CA 92806
November 14, 2016

Commissioner

In compliance with the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, and in accordance with the provisions in the MPEP §§ 609 and 707.05(b), enclosed is FORM PTO/SB/08A/B with a listing of references that are known to applicant. Copies of each of the references listed under "Foreign Patent Documents" are enclosed.

It is respectfully requested that these references be considered in the examination of this application and identified on the list of references cited on the patent issuing on this application. Applicant also requests that an initialed copy of said FORM PTO/SB/08A/B be entered in the application file, and returned to the Applicant with the next official communication from the Office in accordance with MPEP § 609.

The $180 processing fee will be paid via credit card. If there are any other fees due in connection with this filing, the Commissioner is authorized to charge Deposit Account 50-4407. Please show our docket number with any charge to the Deposit Account.

Respectfully submitted,

KPPB LLP

/Jason D. Wolfe/
Jason D. Wolfe
Registration No. 71,327
949.852.0000

JDW/kl
Enclosure(s)

DivX Exhibit 2005
Page 2005 - 208
IPR2020-00558

Electronic Patent Application Fee Transmittal

Application Number:	14970412
Filing Date:	15-Dec-2015
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Filer:	Jason Daniel Wolfe/Katrina Lee
Attorney Docket Number:	D1-02359A.CON2

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	27492965
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Jason Daniel Wolfe/Katrina Lee
Filer Authorized By:	Jason Daniel Wolfe
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	14-NOV-2016
Filing Date:	15-DEC-2015
Time Stamp:	23:23:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	02359ACON2part2sb08.pdf	128408 6cfa4b3f0a8814f92c5f658e206fbecd8aa13b32	no	2

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Foreign Reference	EP1718074A1.pdf	7090275 16fe0985b42946ba7e80a6ded54814b2ff55274b	no	110
Warnings:					
Information:					
3	Foreign Reference	WO2006018843A3.pdf	2540597 d2a64739934d792d6d4c0056023087dad1ab2187	no	2
Warnings:					
Information:					
4	Foreign Reference	WO2007044590A2.pdf	5154571 71777203f9d2288d39c9438843c0ebaaa9cd50a1	no	35
Warnings:					
Information:					
5	Foreign Reference	KR669616wabstract.pdf	1275020 c2bfb39ee1a07ac45955ee6708df518420d37d30	no	11
Warnings:					
Information:					
6	Foreign Reference	WO2007113836A2.pdf	5190493 b9704fbfb533ac7b3027e977f15424a1afa9bb5c	no	68
Warnings:					
Information:					
7	Foreign Reference	WO2008010275A1.pdf	6761741 0461c142daa29bf5c20f02ae5e2e2de0f6837467	no	56
Warnings:					
Information:					
8	Foreign Reference	WO2008042242A2.pdf	7870454 05d7eefd628ac9b27460ec967f636768a3c4e25e	no	108
Warnings:					
Information:					

9	Foreign Reference	WO2007113836A3.pdf	934315 ff87f5da6971d8d3f47bddc512034d418c8f4f4e	no	14
Warnings:					
Information:					
10	Foreign Reference	WO2008135932A2.pdf	4590353 1a9122f874899e6771659c69a65d8ad58d3d6675	no	36
Warnings:					
Information:					
11	Foreign Reference	WO2009065137A1.pdf	3385364 6c3b266a81a3deea9c9c404f4139f1db486751be	no	35
Warnings:					
Information:					
12	Foreign Reference	WO2010060106A1.pdf	5300602 4822b71c68c8765a3201c4d6fc3fae5f6ee051df	no	67
Warnings:					
Information:					
13	Foreign Reference	WO2010080911A1.pdf	1147970 45bfbc3fb02bc134ecc7977973ed31b2012ecbca	no	20
Warnings:					
Information:					
14	Foreign Reference	WO2010089962A1.pdf	5112751 4a1de1de4f2de6b1bde368894b78d4bad978f852	no	39
Warnings:					
Information:					
15	Foreign Reference	WO2010122447A1.pdf	1250065 42c39d1eea106bacdf274397bcfaeb8dddc96c05	no	22
Warnings:					
Information:					

16	Foreign Reference	WO2010147878A1.pdf	4766957 eb9ee119b5cabf83c6cd3cca771ba55fed7b0870	no	34
Warnings:					
Information:					
17	Foreign Reference	WO2011042898A1.pdf	18416558 a0bb7514c8e538d24143bcf1a9fc78ad9341c720	no	268
Warnings:					
Information:					
18	Foreign Reference	WO2011042900A1.pdf	6293286 274ef9a97828fb909e7099a4ca57c6f13c3c753c	no	73
Warnings:					
Information:					
19	Foreign Reference	WO2011068668A1.pdf	4331824 601e3b08c704c674a8e5c2e87f13e43271a5922d	no	34
Warnings:					
Information:					
20	Foreign Reference	WO2011103364A1.pdf	4574909 f773250b0b0ed18755ddd458accff8c243520143	no	30
Warnings:					
Information:					
21	Foreign Reference	WO2011132184A1.pdf	5852790 2b98aa2341362b99fc3ed1293c31d2c65d10c5df	no	40
Warnings:					
Information:					
22	Foreign Reference	WO2011135558A1.pdf	5505421 ca04df76cf678ca486e65527025e2ede69188a5f	no	47
Warnings:					
Information:					

23	Foreign Reference	WO2012035533A2.pdf	5991654 65fc146bdd86c6650a9659953739899e077b837c	no	41
Warnings:					
Information:					
24	Foreign Reference	WO2012035534A2.pdf	8213759 ffe914788709d1271ed6747676f73c33d7d9e6f0	no	51
Warnings:					
Information:					
25	Foreign Reference	WO2012035534A3.pdf	2869417 5295a02320a974c577d73acf97304be9dbbaedad	no	3
Warnings:					
Information:					
26	Foreign Reference	WO2012094181A2.pdf	8560093 f511e64c98437220de6b24e974adae612b2d9a0a	no	61
Warnings:					
Information:					
27	Foreign Reference	WO2012094189A1.pdf	9024710 670f2a2dc3ef40918bfd861e6b7c7ac87e5e26ac	no	67
Warnings:					
Information:					
28	Foreign Reference	WO2012094171A1.pdf	8042475 3ed6ee658ef665a6897c659ab0a7b00db85375f6	no	57
Warnings:					
Information:					
29	Foreign Reference	WO2012035533A3.pdf	2784981 482abba75d8c776bd27c4c22edbde909232392af	no	3
Warnings:					
Information:					

30	Foreign Reference	EP2486517A1.pdf	468411 3ef66343829a09e8928f96fde08c500ce97dc02d	no	1
Warnings:					
Information:					
31	Foreign Reference	EP2486727A1.pdf	467518 c8b36fc0368e1467a1d18572cc6e9a17722059b8	no	1
Warnings:					
Information:					
32	Foreign Reference	EP2507995A1.pdf	471706 a82c82282bd7df07b1c3b3a01c4a58630b3d9c3c	no	1
Warnings:					
Information:					
33	Foreign Reference	WO2012162806A1.pdf	7358549 835677a88378d46e7367bb8fdb6fa6a3ee0722c9	no	55
Warnings:					
Information:					
34	Foreign Reference	WO2012171113A1.pdf	8447188 7ab334ce55e48f7df119c659915dc28247cb0688	no	61
Warnings:					
Information:					
35	Foreign Reference	EP2564354A1.pdf	465807 1dd09b584d5712c7b708f700e7f192b908c06009	no	1
Warnings:					
Information:					
36	Foreign Reference	WO2013030833A1.pdf	7626082 e94aed28521da14e459831e6a904dd440d1efe42	no	97
Warnings:					
Information:					

37	Foreign Reference	WO2013032518A2.pdf	5683248 334c6695a28fdb8f1bfd315c1339eaae1882e1cb	no	86
Warnings:					
Information:					
38	Foreign Reference	WO2013103986A2.pdf	4853647 8892e1c43ae9daf1792e65377edff1568f8497b4	no	33
Warnings:					
Information:					
39	Foreign Reference	EP2616991A4.pdf	2606893 f3adc13d7fb2bc45bb445f707c947f499ed066b6	no	54
Warnings:					
Information:					
40	Foreign Reference	EP2617192A0.pdf	467505 9c7fc5696b614106e58baa1acbc5bd94dbf22ae0	no	1
Warnings:					
Information:					
41	Foreign Reference	WO2013111126A2.pdf	7473912 fe7a98b04d71662c082eb642edcab003e9f9818c	no	51
Warnings:					
Information:					
42	Foreign Reference	WO2013111126A3.pdf	2613735 5260b893c1fa05b25406912db6b463fb4f1dcd1b	no	3
Warnings:					
Information:					
43	Foreign Reference	WO2013032518A3.pdf	2485179 f9cb90652c13e50fc181c771c451799fa095278f	no	2
Warnings:					
Information:					

44	Foreign Reference	WO2013144942A1.pdf	6197778 918cab0048fb572fddd23bd36f9d664ebb1f259f	no	48
Warnings:					
Information:					
45	Foreign Reference	EP2486727A4.pdf	2599917 1fdc5cc1d7c96cdcd99ccc3d012c4d62f38f9faf	no	3
Warnings:					
Information:					
46	Foreign Reference	EP2564354A4.pdf	1148505 be1573ed4b910d036412d863344df31310349db5	no	2
Warnings:					
Information:					
47	Foreign Reference	EP2616991A0.pdf	466639 534695aa8eed02f8167fd1686a63ced4877a5355	no	1
Warnings:					
Information:					
48	Foreign Reference	JP2014506430Awabstract.pdf	6497163 1e7047a4edf1d535278ca2ebf9f19901e76580ec	no	49
Warnings:					
Information:					
49	Foreign Reference	jp2006524007wenglishtranslationr.pdf	15450014 06d186b1b22391fb45099f152494deccb30c37ac	no	56
Warnings:					
Information:					
50	Foreign Reference	jp2007036666wabstracttranslation.pdf	10849045 9709dfd8de414a61e9d5e50554fd59a230d8728e	no	20
Warnings:					
Information:					

51	Foreign Reference	JP2007174375Awtranslationabstract.pdf	14231380 da84e6f67cfdda568d7221ae4af43795549c1a08	no	23
Warnings:					
Information:					
52	Foreign Reference	jp2007235690wtranslationabstract.pdf	9226618 e63aed29c6e36b5d7e1a3f9d669973534f4856cb	no	62
Warnings:					
Information:					
53	Foreign Reference	JP2007535881Awabstract.pdf	15040788 c596d95369e818c0a8ae2298f0b3d7a53e3152cd	no	25
Warnings:					
Information:					
54	Foreign Reference	JP2008235999Awabstract.pdf	25236869 8c38b9b5ee939f8bda6d2d30e3954ad8adcec7e7	no	38
Warnings:					
Information:					
55	Transmittal Letter	02359acon2part2xtml.pdf	89855 5bd0daa91a48ad357e1cd69c3588a7573a2f527e	no	2
Warnings:					
Information:					
56	Fee Worksheet (SB06)	fee-info.pdf	30944 77ab83cc265309ded2df78e1f6887e65747d0d5a	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	311516708	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2617192	EP	A4	2014-03-19	Shoham, Tamar et al.		
		2716048	EP	A1	2014-04-09	Wang, Zhou et al.		
		2721826	EP	A1	2014-04-23	Wang, Zhou et al.		
		2486517	EP	A4	2014-06-11	Shoham, Tamar et al.		
		2751990	EP	A0	2014-07-09	Shoham, Tamar et al.		
		2014145901	WO	A1	2014-09-18	Grab, Eric et al.		
		2807821	EP	A2	2014-12-03	Shoham, Tamar et al.		
		2014193996	WO	A2	2014-12-04	Shivadas et al.		
		2014193996	WO	A3	2015-02-19	Shivadas et al.		
		2015031982	WO	A1	2015-03-12	Zeng, Kai et al.		

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
		"IBM Closes Cryptolopes Unit," December 17, 1997, CNET News, Retrieved from http://news.cnet.com/IBM-closes-Cryptolopes-unit/2100-1001_3206465.html, 3 pgs.	
		"Information Technology-Coding of Audio Visual Objects- Part 2: Visual" International Standard, ISO/IEC 14496-2, Third Edition, Jun. 1, 2004, pp. 1-724 (presented in three parts)	
		"OpenDML AVI File Format Extensions," September 1997, Version 1.02, XP-002179318, OpenDML AVI M-JPEG File Format Subcommitee, 42 pgs.	
		Broadq - The Ultimate Home Entertainment Software, printed 5/11/09 from ittp://web.srchive.org/web/20030401122010/www.broadq.com/qcasttuner/, 1 pg.	
		Cloakware Corporation, "Protecting Digital Content Using Cloakware Code Transformation Technology", Version 1.2, May 2002, pgs. 1-10,	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		European Search Report Application No. EP 08870152, Search Completed May 19, 2011, Mailed May 26, 2011, 10 pgs.	
		European Search Report for Application 11855103.5, search completed June 26, 2014, 9 pgs.	
		European Search Report for Application 11855237.1, search completed June 12, 2014, 9 pgs.	
		European Supplementary Search Report for Application EP09759600, completed January 25, 2011, 11 pgs.	
		Federal Computer Week, "Tool Speeds Info to Vehicles", July 25, 1999, 5 pages.	
		Griffith, Eric, Wi-Fi Planet, The Wireless Digital Picture Fram Arrives, printed May 4, 2007 from http://www.wi-fiplanet.com/news/article.php/3093141, 3 pgs.	
		HTTP Live Streaming Overview, Networking & Internet, Apple, Inc., April 1, 2011, 38 pages	
		IBM CORPORATION and MICROSOFT CORPORATION, "Multimedia Programming Interface and Data Specifications 1.0", August 1991, printed from http://www.kk.iij4u.or.jp/~kondo/wave/mpidata.txt on March 6, 2006, 100 pgs.	
		Informationweek: Front End: Daily Dose, "Internet on Wheels", July 20. 1999, 3 pgs.	
		International Preliminary Report on Patentability for International Application PCT/US14/30747, Issued Sep 15, 2015, Mailed Sep 24, 2015, 6 Pgs.	
		International Preliminary Report on Patentability for International Application No. PCT/US2011/068276, Issue Date March 4, 2014, 23 pgs.	
		International Preliminary Report on Patentability for International Application PCT/US2013/043181, issued Dec 31, 2014, Mailed Jan 8, 2015, 11 Pgs.	
		International Preliminary Report on Patentability for International Application PCT/US2014/039852, issued Dec 1, 2015, Mailed Dec 5, 2015, 8 Pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		International Search Report and Written Opinion for International Application No. PCT/US08/87999, completed February 7, 2009, mailed March 19, 2009, 6 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US09/46588, completed July 14, 2009, mailed July 23, 2009, 7 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2004/041667, Completed May 24, 2007, Mailed June 20, 2007, 6 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2007/063950, completed Feb 19, 2008; mailed Mar 19, 2008, 9 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2008/083816, completed Jan 10, 2009, mailed Jan 22, 2009, 7 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2010/56733, Completed Jan 3, 2011, Mailed Jan 14, 2011, 6 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2013/043181, Completed Nov 27, 2013, Mailed Dec 6, 2013, 12 pgs.	
		International Search Report and Written Opinion for International Application PCT/US14/39852, Completed Oct 21, 2014, Mailed Dec05, 2014, 11 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2011/066927 Completed April 3, 2012, Mailed April 20, 2012, 14 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2011/067167, Completed June 19, 2012, Mailed July 2, 2012, 11 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2011/068276, completed June 19, 2013, Mailed July 8, 2013, 24 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2013/020572, Completed March 19, 2013, Mailed April 29, 2013, 10 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2005/025845 completed Feb 5, 2007 and mailed May 10, 2007, 7 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		ITS International, "Fleet System Opts for Mobile Server", Aug 26, 1999, 1 page.	
		KISS DP-500 from http://www.kiss-technology.com/?p=dp500, 10 KISS Players, 1 pg.	
		Lifehacker - Boxqueue Bookmarklet Saves Videos for Later Boxee Watching, printed June 16, 2009 from http://feeds.gawker.com/~r/lifehacker/full/~3/OHvDmrlgZZc/boxqueue-bookmarklet-saves-videos-for-late-boxee-watching, 2 pgs.	
		Linksys Wireless-B Media Adapter Reviews, printed May 4, 2007 from http://reviews.cnet.com/Linksys_Wireless_B_Media_Adapter/4505-6739_7-30421900.html?tag=box, 5 pgs.	
		Linksys, KISS DP-500, printed May 4, 2007 from http://www.kiss-technology.com/?p=dp500, 2 pgs.	
		LINKSYS® : "Enjoy your digital music and pictures on your home entertainment center, without stringing wires!", Model No. WMA 11B, printed May 9, 2007 from http://www.linksys.com/servlet/Satellite?c=L_Product_C2&childpagename=US/Layout&cid=1115416830950&p	
		MICROSOFT CORPORATION, "Chapter 8, Multimedia File Formats" 1991, Microsoft Windows Multimedia Programmer's Reference, 3 cover pgs., pp. 8-1 to 8-20	
		Microsoft Windows® XP Media Center Edition 2005, Frequently asked Questions, printed May 4, 2007 from http://www.microsoft.com/windowsxp/mediacenter/evaluation/faq.mspx,	
		Microsoft Windows® XP Media Center Edition 2005: Features, printed May 9, 2007, from http://www.microsoft.com/windowsxp/mediacenter/evaluation/features.mspx, 4 pgs.	
		Microsoft, Microsoft Media Platform: Player Framework, "Silverlight Media Framework v1.1", 2 pages.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		Microsoft, Microsoft Media Platform: Player Framework, "Microsoft Media Platform: Player Framework v2.5 (formerly Silverlight Media Framework)", 2 pgs.	

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 11 82 4682

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	KR 2010 0073554 A (SK TELECOM CO LTD [KR]) 1 July 2010 (2010-07-01) * paragraph [0028] - paragraph [0063]; figures 5-10 *	1-20	INV. H04N19/132 H04N19/154 H04N19/18 H04N19/186 H04N19/40 H04N19/60
A	CHANG I-H ET AL: "ADAPTIVE SUBSAMPLING JPEG IMAGE CODING", INTERNATIONAL CONFERENCE ON CONSUMER ELECTRONICS - DIGEST OF TECHNICAL PAPERS. ROSEMONT, JUNE 7 - 9 1995; [INTERNATIONAL CONFERENCE ON CONSUMER ELECTRONICS - DIGEST OF TECHNICAL PAPERS], NEW YORK, IEEE, US, vol. CONF. 14, 7 June 1995 (1995-06-07), page 264/265, XP000547814, ISBN: 978-0-7803-2141-0 * section [2. Adaptive subsampling coding system] *	1-20	
A	US 2002/157112 A1 (KUHN PETER [JP]) 24 October 2002 (2002-10-24) * paragraph [0114] - paragraph [0130]; figure 15 *	1-20	TECHNICAL FIELDS SEARCHED (IPC) H04N
A	LEE Y-H ET AL: "Perceptual activity measures computed from blocks in the transform domain", SIGNAL PROCESSING, ELSEVIER SCIENCE PUBLISHERS B.V. AMSTERDAM, NL, vol. 82, no. 4, 1 April 2002 (2002-04-01), pages 693-707, XP004349788, ISSN: 0165-1684, DOI: 10.1016/S0165-1684(02)00134-2 * the whole document *	1-20	

-/--

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	6 February 2014	Georgiou, Georgia

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

1

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 226
IPR2020-00558

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 11 82 4682

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	ALEXANDER WONG ET AL: "Practical Content-Adaptive Subsampling for Image and Video Compression", PROCEEDINGS / ISM 2006, EIGHTH IEEE INTERNATIONAL SYMPOSIUM ON MULTIMEDIA : 11 - 13 DECEMBER 2006, SAN DIEGO, CA, IEEE COMPUTER SOCIETY, LOS ALAMITOS, CALIF. [U.A.], 1 December 2006 (2006-12-01), pages 667-673, XP031041844, ISBN: 978-0-7695-2746-8 * the whole document *	1-20	
A	US 6 122 442 A (PURCELL STEPHEN C [US] ET AL) 19 September 2000 (2000-09-19) * column 33, line 24 - line 40 *	1-20	
A	BOVIK A C ET AL: "Image Quality Assessment: From Error Visibility to Structural Similarity", IEEE TRANSACTIONS ON IMAGE PROCESSING, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 13, no. 4, 1 April 2004 (2004-04-01), pages 600-612, XP011110418, ISSN: 1057-7149, DOI: 10.1109/TIP.2003.819861 * section [II. Image Quality Assessment based on error sensitivity] *	1-20	TECHNICAL FIELDS SEARCHED (IPC)
A	US 2006/133685 A1 (WANG YU-WEI [US] ET AL) 22 June 2006 (2006-06-22) * paragraph [0038] - paragraph [0057] *	1-20	

-/--

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	6 February 2014	Georgiou, Georgia

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 227
IPR2020-00558

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 11 82 4682

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,P	KUO-LIANG CHUNG ET AL: "Efficient chroma subsampling strategy for compressing digital time delay integration mosaic video sequences in H.264/AVC", JOURNAL OF ELECTRONIC IMAGING, vol. 20, no. 2, 1 January 2011 (2011-01-01), page 023011, XP055100417, ISSN: 1017-9909, DOI: 10.1117/1.3586799 * section [3 Proposed Modified Chroma Subsampling] *	9,19	

TECHNICAL FIELDS SEARCHED (IPC)

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	6 February 2014	Georgiou, Georgia

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 228
IPR2020-00558

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 82 4682

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-02-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 20100073554 A	01-07-2010	KR 20100073554 A	01-07-2010
		US 2011255608 A1	20-10-2011
		WO 2010074407 A2	01-07-2010
US 2002157112 A1	24-10-2002	CN 101035277 A	12-09-2007
		US 2002157112 A1	24-10-2002
US 6122442 A	19-09-2000	DE 639032 T1	14-12-1995
		EP 0639032 A2	15-02-1995
		US 5598514 A	28-01-1997
		US 5608656 A	04-03-1997
		US 5630033 A	13-05-1997
		US 5740340 A	14-04-1998
		US 6071004 A	06-06-2000
		US 6122442 A	19-09-2000
US 2006133685 A1	22-06-2006	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

Europäisches Patentamt
European Patent Office
Office européen des brevets

European Patent Office
80298 MUNICH
GERMANY

Questions about this communication ?
Contact Customer Services at www.epo.org/contact

MATSCHNIG & FORSTHUBER
eingelangt

03. Juli 2014

Frist: .....

Patentanwaltskanzlei
Matschnig & Forsthuber OG
Siebensterngasse 54
1070 Wien
AUTRICHE

Date
02.07.14

Reference	Application No./Patent No.
P13245pct-eu	11855103.5 - 1905 / 2661875 PCT/US2011067243
Applicant/Proprietor	
Sonic IP, Inc.	

Communication

The extended European search report is enclosed.

The extended European search report includes, pursuant to Rule 62 EPC, the supplementary European search report (Art. 153(7) EPC) and the European search opinion.

Copies of documents cited in the European search report are attached.

☑ 0 additional set(s) of copies of such documents is (are) enclosed as well.

Refund of the search fee
If applicable under Article 9 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.

Should you wish to further prosecute this application in the examination phase, your attention is drawn to the provisions of Rule 70a EPC. An invitation to respond to the extended European search report will be issued shortly (R. 70(2) EPC).

Europäisches Patentamt • European Patent Office • Office européen des brevets

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 11 85 5103

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	WO 2004/102571 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; RIJCKAERT ALBERT M A [NL]) 25 November 2004 (2004-11-25) * abstract * * figures 3,4 * * page 5, line 30 - line 31 * * page 6, line 1 * * page 6, lines 11-27 * * page 9, line 7 - line 8 * * page 12, line 10 *	1-15	INV. H04N21/2343 H04N21/2387 H04N21/262 H04N21/2662 H04N21/442 H04N21/6587 H04N21/854 H04N21/845 H04N21/8543 H04N7/12 H04L29/06 G11B27/00 G11B27/32 G11B27/11
Y	US 2009/328124 A1 (KHOUZAM GILLES [US] ET AL) 31 December 2009 (2009-12-31) * abstract * * figures 2,3 * * paragraphs [0024], [0025], [0027], [0030], [0045], [0046] *	1-15	
A	NOÉ A: "Matroska File Format (under construction!)", INTERNET CITATION, 24 June 2007 (2007-06-24), pages 1-51, XP002617671, Retrieved from the Internet: URL:http://web.archive.org/web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19] * tables 16, 17, 19 * * pages 29, 42 * * page 30, line 1 - line 5 *	1-15	TECHNICAL FIELDS SEARCHED (IPC) H04N
A	WO 2009/065137 A1 (DIVX INC [US]; SOROUSHIAN KOUROSH [US]; OSBORNE ROLAND [US]; BRANESS J) 22 May 2009 (2009-05-22) * abstract * * figures 1, 2A-2D, 8, 9, 11 *	1-15	

-/--

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	26 June 2014	Wedi, Thomas

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 1 of 2
Page 2005 - 231
IPR2020-00558

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 11 85 5103

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 2007/168542 A1 (GUPTA MANISH [US] ET AL) 19 July 2007 (2007-07-19) * paragraphs [0071], [0074] *	13	

TECHNICAL FIELDS SEARCHED (IPC)

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	26 June 2014	Wedi, Thomas

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

1

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 232
IPR2020-00558

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 85 5103

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

26-06-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2004102571 A1	25-11-2004	CN 1791939 A	21-06-2006
		EP 1629502 A1	01-03-2006
		JP 2007504778 A	01-03-2007
		KR 20060012299 A	07-02-2006
		US 2007031110 A1	08-02-2007
		WO 2004102571 A1	25-11-2004
US 2009328124 A1	31-12-2009	US 2009328124 A1	31-12-2009
		US 2013117792 A1	09-05-2013
WO 2009065137 A1	22-05-2009	CN 101861583 A	13-10-2010
		EP 2223232 A1	01-09-2010
		JP 2011505648 A	24-02-2011
		KR 20100106327 A	01-10-2010
		US 2009132599 A1	21-05-2009
		US 2013055084 A1	28-02-2013
		WO 2009065137 A1	22-05-2009
US 2007168542 A1	19-07-2007	AU 2007205046 A1	19-07-2007
		CA 2636172 A1	19-07-2007
		EP 1980106 A1	15-10-2008
		JP 2009522939 A	11-06-2009
		JP 2012213198 A	01-11-2012
		US 8230102 B1	24-07-2012
		US 2007162568 A1	12-07-2007
		US 2007162571 A1	12-07-2007
		US 2007162611 A1	12-07-2007
		US 2007168541 A1	19-07-2007
		US 2007168542 A1	19-07-2007
		US 2011035034 A1	10-02-2011
		US 2011238747 A1	29-09-2011
		US 2012246278 A1	27-09-2012
		WO 2007081877 A1	19-07-2007

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

The examination is being carried out on the **following application documents**

Description, Pages

1-41 as published

Claims, Numbers

1-15 received on 21-02-2014 with letter of 21-02-2014

Drawings, Sheets

1/14-14/14 as published

Reference is made to the following documents; the numbering will be adhered to in the rest of the procedure.

D1 WO 2004/102571 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; RIJCKAERT ALBERT M A [NL]) 25 November 2004 (2004-11-25)

D2 US 2009/328124 A1 (KHOUZAM GILLES [US] ET AL) 31 December 2009 (2009-12-31)

D3 NOÉ A: "Matroska File Format (under construction!)", INTERNET CITATION, 24 June 2007 (2007-06-24), pages 1-51, XP002617671, Retrieved from the Internet: URL:http://web.archive.org/web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19]

D4 WO 2009/065137 A1 (DIVX INC [US]; SOROUSHIAN KOUROSH [US]; OSBORNE ROLAND [US]; BRANESS J) 22 May 2009 (2009-05-22)

D5 US 2007/168542 A1 (GUPTA MANISH [US] ET AL) 19 July 2007 (2007-07-19)

1 **Independent Claim (lack of inventive step)**

The present application does not meet the requirements of Article 52(1) EPC because the subject-matter of the independent claim 1 does not involve an inventive step within the meaning of Article 56 EPC.

1.1 D1 is considered to be the prior art closest to the subject-matter of claim 1 and discloses (while repeating the wording of claim 1, the references in parentheses apply to document D1):

A method of performing visual search of encoded media using a trick play stream
(Abstract in conjunction with "the method of replaying video" in Fig. 4),

where the media is encoded as a ~~plurality of alternative~~ streams used during normal playback and a trick play stream used during visual search
("A video stream and different trickplay versions of that stream are stored as separate files" in the abstract),

the method comprising:
- requesting and buffering portions of video from ~~at least one of the alternative~~ streams using a playback device;
(Fig. 4, step 36 in conjunction with page 5, lines 30-31)

- decoding the buffered portions of video using a decoder on the playback device;
(Decoding is an obviously and necessary step in playback devices)

- receiving at least one user instruction directing the playback device to perform a visual search of the media;
(Fig. 4, step 38 in conjunction with page 6, line 1)

- requesting and buffering portions of video from the trick play stream using the playback device; and
(Fig. 4 steps 39, 40, 36 in conjunction with page 6, lines 11-27, especially "In step 40, the controller 2 determines the position in the play stream data file for the newly selected play mode" and " retrieving video data from the newly selected video file")

- decoding the buffered portions of the trick play stream using a decoder on the playback device
(Decoding is an obviously and necessary step in playback devices);

wherein ~~the alternative~~ streams and the trick play stream are stored in separate Extensible Binary Markup Language (EBML) container files;wherein each of the EBML container files comprises a plurality of Cluster elements, where each Cluster element contains a portion of encoded video; and wherein the portion of encoded video in each of the Cluster elements commences with an intra frame.
(The usage of the EBML container format appears to be an obvious design option, that is well known in the prior art. E.g. from D3 or D4.)

1.2 The subject-matter of claim 1 therefore differs from this known D1 in that instead of using one stream for normal playback a *plurality of alternative streams* is *used during normal playback.*

1.3 The problem to be solved by the present invention may therefore be regarded as how to adapt the video transmission to variable network conditions.

1.4 The solution proposed in claim 1 of the present application cannot be considered to involve an inventive step (Articles 52(1) and 56 EPC), because it is well known common practice to use a plurality of alternative streams and to switch between these streams based on the network conditions. This is for example also disclosed in D2 (e.g. abstract, separate video files "Video File (low)" 211, "Video File (med)" 211,"Video File (high)" 213 in Fig. 2 in conjunction with paragraph [27] and [30], especially "stream video from three corresponding video file versions 211-213".

1.5 The reasoning above also applies mutatis mutandis to the corresponding claim 15.

2 Dependent Claims

Dependent claims 2-14 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to inventive step.

2.1 Claim 2 (measuring the current streaming conditions):
Measuring streaming conditions by response times is common and well known practice.

2.2 Claim 3 (bitrate switching based on measured network conditions):
D2: "When playback conditions are impeded, select a transition point for a lower bit rate" step 305 and "Switch playback of the video file from the default

video file version to the lower bit rate version" step 307 in Fig. 3 in conjunction with paragraph [0045]. And corresponding steps 308 and 310 of Fig. 3 in conjunction with paragraph [0046] for improved playback conditions.

2.3 Claim 4 (each frame is an intra frame)
"it is advantageous to construct trickplay streams using I-frames" on page 12, line 10 of D1

2.4 Claim 5 (rate and direction of trick-play)
Using rate and direction for trick-play is common and well known practice. E.g. "different replay rate or time direction of the video play mode" in D1, page 9, lines 7-8

2.5 Claim 6 (separate files and usage of HTTP)
D2 uses separate video files "Video File (low)" 211, "Video File (med)" 211,"Video File (high)" 213. And, as also mentioned in the application itself, the usage of HTTP is the "typical" design choice for an adaptive streaming solution

2.6 Claim 7 (Cluster includes GOP)
It is common and well known practice to use clusters that include at least one GOP

2.7 Claim 8 (Cluster elements in alternative streams have same duration)
To allow easy switching between different streams it is common practice to construct clusters that have the same duration.

2.8 Claim 9 (Cluster element contains time code and content in seperate element)
"TimeCode" in Table 16 on page 28, "BlockGroup element" in Table 17 on page 29, and "keyframe" in section "6.1 Basic layout of a Block" on page 42 of D3

2.9 Claim 10 (first frame in Cluster is intra frame)
It is common well known practice to use a keyframe / intra fame as the first frame in the cluster because "The keyframe provides a convenient switching position since the keyframe can be readily decoded." (Paragraph [0036] of D2)

2.10 Claim 11 (Cue element refers to cluster elements)
"Cues element" and "CuePoints", which contain "cluster position" information on page 30, lines 1-5 and "CueTrackPositions" that indicate "a position where a Cluster or Block can be found" in Table 19 on page 31 of D3.

2.11 Claim 12 (retrieve Cues elements based on trick-play rate)
"retrieve index files" in step 302 of Fig. 3 in D2. Furthermore, it common and well known to use the rate and direction for trick-play. E.g. "different replay rate or time direction of the video play mode" in D1, page 9, lines 7-8

2.12 Claim 13 (modifying the time stamps)
Changing the time stamps of edited streams such as trick-play streams, is common practice. E.g. paragraphs [0071] and [0074] of D5.

2.13 Claim 14 (top level index)
"retrieve index files" in step 302 of Fig. 3 of D2

3 Procedure

It is not clear what inventive/novel contribution has been made to the art by the present application. However, if the applicant can identify such a contribution and wishes to continue with the present application, he is invited to file a new set of claims directed towards such matter with suitable supporting arguments.

When revising the application, the applicant should also meet the following points:

3.1 New independent claims which set out clearly and concisely the inventive contribution should be presented in a number which satisfies the requirement of Rule 43(2) EPC;

3.2 The new claims should be divided in the appropriate two-part form, with a first portion correctly reflecting the nearest prior art disclosed by document D1 and D2 (Rule 43(1)(a) and (b) EPC);

3.3 To meet the requirements of Rule 42(1)(b) EPC, document D1 and D2 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

3.4 The applicant is welcome to provide amended claims where added material is shown in underlined type and deleted material is shown in ~~strike-out type~~. An additional "clean" version should then also be provided to facilitate any potential office-internal scanning/OCR and printing process.

3.5 In order to meet the requirements of Rule 137(4) EPC and to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant is requested to clearly

identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 11 85 5237

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 2009/328124 A1 (KHOUZAM GILLES [US] ET AL) 31 December 2009 (2009-12-31) * abstract * * figures 1-4 * * paragraph [0024] - paragraph [0025] * * paragraphs [0027], [0032], [0036], [0038] * * paragraph [0045] - paragraph [0046] * -----	1-5,8-10 6,7, 11-15	INV. H04N21/2343 H04N21/442 G06F15/16 G11B27/00 G11B27/11 G11B27/32 H04L29/06 H04N21/2387
X Y	US 2009/150557 A1 (WORMLEY NICHOLAS [US] ET AL) 11 June 2009 (2009-06-11) * abstract * * figures 1-4 * * paragraph [0005] - paragraph [0011] * * paragraph [0053] * -----	1-5,8-10 6,7, 11-15	H04N21/262 H04N21/2662 H04N21/6587 H04N21/845 H04N21/854 H04N21/8543
Y	US 2005/038826 A1 (BAE DAE-GYU [KR] ET AL) 17 February 2005 (2005-02-17) * abstract * * figures 4-10; table 17 * -----	6,7	
Y	WO 2004/102571 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; RIJCKAERT ALBERT M A [NL]) 25 November 2004 (2004-11-25) * abstract * * page 2, line 15 - line 19 * -----	11	TECHNICAL FIELDS SEARCHED (IPC) H04N
Y	WO 2010/122447 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; FOO TECK W [SG]; LOI TEK S [MY]) 28 October 2010 (2010-10-28) * abstract * * page 2, line 13 - line 18 * -----	12-15	
	-/--		

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	12 June 2014	Wedi, Thomas

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasone

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 240
IPR2020-00558

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 11 85 5237

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	NOË A: "Matroska File Format (under construction!)", INTERNET CITATION, 24 June 2007 (2007-06-24), pages 1-51, XP002617671, Retrieved from the Internet: URL:http://web.archive.org/web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19] * page 12 * * page 28 - page 31 * * page 42 *	1-15	
A	WO 2009/065137 A1 (DIVX INC [US]; SOROUSHIAN KOUROSH [US]; OSBORNE ROLAND [US]; BRANESS J) 22 May 2009 (2009-05-22) * the whole document * * figures 1, 2A-2D *	1-15	

TECHNICAL FIELDS SEARCHED (IPC)

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	12 June 2014	Wedi, Thomas

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2 of 2
Page 2005 - 241
IPR2020-00558

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 85 5237

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-06-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009328124 A1	31-12-2009	US 2009328124 A1	31-12-2009
		US 2013117792 A1	09-05-2013
US 2009150557 A1	11-06-2009	US 2009150557 A1	11-06-2009
		US 2013346627 A1	26-12-2013
		WO 2009075766 A2	18-06-2009
US 2005038826 A1	17-02-2005	KR 20040080735 A	20-09-2004
		US 2005038826 A1	17-02-2005
WO 2004102571 A1	25-11-2004	CN 1791939 A	21-06-2006
		EP 1629502 A1	01-03-2006
		JP 2007504778 A	01-03-2007
		KR 20060012299 A	07-02-2006
		US 2007031110 A1	08-02-2007
		WO 2004102571 A1	25-11-2004
WO 2010122447 A1	28-10-2010	CN 102405639 A	04-04-2012
		EP 2422514 A1	29-02-2012
		JP 2012524446 A	11-10-2012
		RU 2011147112 A	27-05-2013
		US 2012039582 A1	16-02-2012
		WO 2010122447 A1	28-10-2010
WO 2009065137 A1	22-05-2009	CN 101861583 A	13-10-2010
		EP 2223232 A1	01-09-2010
		JP 2011505648 A	24-02-2011
		KR 20100106327 A	01-10-2010
		US 2009132599 A1	21-05-2009
		US 2013055084 A1	28-02-2013
		WO 2009065137 A1	22-05-2009

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

The examination is being carried out on the **following application documents**

Description, Pages

1-30 as published

Claims, Numbers

1-15 received on 13-02-2014 with letter of 13-02-2014

Drawings, Sheets

1/13-13/13 as published

Reference is made to the following documents; the numbering will be adhered to in the rest of the procedure.

D1 US 2009/328124 A1 (KHOUZAM GILLES [US] ET AL) 31 December 2009 (2009-12-31)

D2 US 2009/150557 A1 (WORMLEY NICHOLAS [US] ET AL) 11 June 2009 (2009-06-11)

D3 WO 2009/065137 A1 (DIVX INC [US]; SOROUSHIAN KOUROSH [US]; OSBORNE ROLAND [US]; BRANESS J) 22 May 2009 (2009-05-22)

D4 NOÉ A: "Matroska File Format (under construction!)", INTERNET CITATION, 24 June 2007 (2007-06-24), pages 1-51, XP002617671, Retrieved from the Internet: URL:http://web.archive.org/web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19]

D5 US 2005/038826 A1 (BAE DAE-GYU [KR] ET AL) 17 February 2005 (2005-02-17)

D6 WO 2004/102571 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; RIJCKAERT ALBERT M A [NL]) 25 November 2004 (2004-11-25)

D7 WO 2010/122447 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; FOO TECK W [SG]; LOI TEK S [MY]) 28 October 2010 (2010-10-28)

1 Independent Claim

The present application does not meet the requirements of Article 52(1) EPC because the subject-matter of the independent claim 1 does not involve an inventive step within the meaning of Article 56 EPC.

1.1 The subject-matter of claim 1 is not inventive over the disclosure of document D1, because document D1 discloses (while repeating the wording of claim 1, the references in parentheses apply to document D1):

A playback device ("VIDEO APPLICATION" 115) *configured to perform adaptive bitrate streaming using a plurality of alternative streams of encoded video* (Video Files 211, 212, 213) *packaged within extensible binary markup language (EBML) container files,*
(Fig. 1 and 2 in conjunction with paragraph [0024])

where each of the plurality of alternative streams is the same source video encoded using different encoding parameters in such a way that each portion of encoded video packed into an element of an EBML container file commences with an intra frame starting a closed Group of Pictures (GOP) and each of the EBML container files includes at least one element that specifies the encoding parameters of the stream contained within the EBML container file, the playback device comprising:
("high bit rate version 213" and "lower bit rate versions ... (e.g. version 212 or version 211)" in paragraph [0032] in conjunction with paragraph [0036], especially "The keyframe provides a convenient switching position since the keyframe can be readily decoded.", and the implicit presence of a *GOP*. It is furthermore implicit that the *encoding parameters of the stream* are contained in the stream, because encoding parameters are necessary for decoding the stream.)

a processor configured, via a client application, to request portions of files from a remote server via Hypertext Transfer Protocol (HTTP) byte range requests;
("Video Application" 115 of Fig. 2 in conjunction with with the "bidirectional link" 220, paragraph [0038], and "Processing Unit" 403 in Fig. 4. As also mentioned in the application itself, the usage of HTTP is the state of the art design choice for an adaptive streaming solution.)

wherein the client application further configures the processor to:
retrieve top level index data that identifies a plurality of EBML container files and describes at least a maximum bitrate of the alternative streams contained within the EBML container files;
("retrieve index files" in step 302 of Fig. 3)

parse the top level index data to obtain information identifying the plurality of EBML container files;
(Parsing is implicit in step 303 of Fig. 3: "Initiate respective media players for each of the video file versions")

request a portion of at least one of the EBML container files that contains the at least one element that specifies the encoding parameters of the stream contained within the EBML container file;
(This is implicitly necessary in all streaming application, because without *encoding parameters* the stream can not be decoded.)

retrieve an index that references each element containing portions of encoded video within at least one of the EBML container files;
("retrieve index files" in step 302 of Fig. 3 in conjunction with "the information conferred by index files can be included within the video file itself using indexing metadata" in paragraph [0025])

utilize the index to request portions of a first EBML container file that includes elements that contain portions of encoded video;
(Paragraph [0024] " The index files allows the application 115 to download a selected portion of its corresponding video file, as opposed to downloading the entire video file."])

receive and buffer the requested elements;
decode the encoded video contained within the buffered elements utilizing the encoding parameters;
(This is implicit for any streaming application and thus also implicit for step 304 of Fig. 3: "Begin playback of the video file using ... the default video file version.")

measure current streaming conditions by measuring the time taken to receive requested elements from the time at which the elements were requested; and
select another of the EBML container files from which to retrieve

elements containing portions of encoded video for decoding, where the selection is based upon the measured streaming conditions and the description of the bitrate of the alternative stream contained within the top level data.
("When playback conditions are impeded, select a transition point for a lower bit rate" step 305 and "Switch playback of the video file from the default video file version to the lower bit rate version" step 307 in Fig. 3 in conjunction with paragraph [0045]. And corresponding steps 308 and 310 of Fig. 3 in conjunction with paragraph [0046] for improved playback conditions.)

1.2 It is noted that D1 uses a general container format and does not explicitly mention the specific EBML container format. However, the EBML container format appears to be an obvious design option, that is well known in the prior art. E.g. from D6 or D7.

1.3 It is further noted that also D2 discloses all the features of claim 1: Abstract, Fig. 1-4, paragraphs [0005-0011], [0053]

2 Dependent Claims

Dependent claims 2-15 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to novelty and/or inventive step. For the following opinion, the claims are clustered based on its subject-matter.

2.1 Details of EBML container structure

2.1.1 Claim 2 (EBML contains plurality of cluster elements):
Plurality of "Cluster" branches in the "EBML-Tree" depicted in the picture on page 12 of D6

2.1.2 Claim 3 (Cluster element contains time code and content in seperate BlockGroup element)
"TimeCode" in Table 16 on page 28, "BlockGroup element" in Table 17 on page 29, and "keyframe" in section "6.1 Basic layout of a Block" on page 42 of D6

2.1.3 Claim 8 and 9 (index, Cues and CuePoints in EBML container)
"Cues" and "CuePoints" in Section 5.6 of D6

2.2 Details on content inside an EBML container (How to change the bitrate?)

2.2.1 Claim 4 and 5 (change maximum bitrate by using different resolutions or frame rate):
It is common general knowledge to change the bitrate using different resolutions or frame rates

2.3 Details concerning index data

2.3.1 Claim 6 and 7 (index data is SMIL data):
Fig. 4-10 of D3

2.4 Client application

2.4.1 Claim 10 (client application of claim 1):
"VIDEO APPLICATION" 115 of Fig. 2 of D1

2.5 Trick-Play integration

2.5.1 Claim 11 (separate container contains trick play track):
page 2, lines 15-19 of D4, especially "By storing a normal play stream and a trickplay stream as separately accessible files..."

2.6 Integration of separate information

2.6.1 Claim 12-15 (including audio and subtitles)
page 2, lines 13-18 of D5, especially " Matroska file types are .MKV for video (with subtitles and audio), .MKA for audio-only files and .MKS for subtitles only." and
"The video content includes a video file, one or more audio files (e.g. original audio file and audio files in other languages) and possibly one or more closed captions such as subtitle files." on page 4, lines 4-6

3 Procedure

3.1 It is not clear what inventive/novel contribution has been made to the art by the present application. However, if the applicant can identify such a contribution and wishes to continue with the present application, he is invited to file a new set of claims directed towards such matter with suitable supporting arguments.

When revising the application, the applicant should also meet the following points:

3.1.1 New independent claims which set out clearly and concisely the inventive contribution should be presented in a number which satisfies the requirement of Rule 43(2) EPC;

3.1.2 The new claims should be divided in the appropriate two-part form, with a first portion correctly reflecting the nearest prior art disclosed by document D1 (Rule 43(1)(a) and (b) EPC);

3.1.3 The features of the claims should be provided with reference signs placed in parentheses to increase the intelligibility of the claims (Rule 43(7) EPC). This applies to both the preamble and characterising portion (see the Guidelines for Examination, F-IV 4.19).

3.1.4 To meet the requirements of Rule 42(1)(b) EPC, document D1 and D2 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

3.1.5 The applicant is welcome to provide amended claims where added material is shown in underlined type and deleted material is shown in ~~strike-out type~~. An additional "clean" version should then also be provided to facilitate any potential office-internal scanning/OCR and printing process.

3.1.6 In order to meet the requirements of Rule 137(4) EPC and to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

DivX Exhibit 2005
Page 2005 - 248
IPR2020-00558

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 09 75 9600

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	"Text of ISO/IEC 14496-18/COR1", ITU STUDY GROUP 16 - VIDEO CODING EXPERTS GROUP -ISO/IEC MPEG & ITU-T VCEG(ISO/IEC JTC1/SC29/WG11 AND ITU-T SG16 Q6), no. N8664, 7 November 2006 (2006-11-07), XP030015158, * the whole document * -----	1-6, 13-15 7-12	INV. G06T11/00 H04N5/00 H04N5/445 H04N7/24 H04N7/52 H04N7/50 H03M7/30
Y	EP 1 718 074 A1 (SONY CORP [JP]) 2 November 2006 (2006-11-02) * paragraphs [0002] - [0004] * * paragraphs [0038] - [0046] * * paragraphs [0099] - [0107] * * figures 2-4,9-11 * -----	7-12	
A	Noé, A.: "Matroska File Format", , 24 June 2007 (2007-06-24), pages 1-51, XP002617671, Retrieved from the Internet: URL:http://web.archive.org/web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19] * page 9, section 3.2 * * pages 37-41, sections 5.8-5.9 * -----	1-15	TECHNICAL FIELDS SEARCHED (IPC) H04N H03M
A	"Text of ISO/IEC 14496-18/FDIS", ITU STUDY GROUP 16 - VIDEO CODING EXPERTS GROUP -ISO/IEC MPEG & ITU-T VCEG(ISO/IEC JTC1/SC29/WG11 AND ITU-T SG16 Q6), no. N6215, 7 January 2004 (2004-01-07), XP030013153, * pages 12-15, section 5 * -----	1-15	

-/--

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	25 January 2011	André, Thomas

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 249
IPR2020-00558

Europäisches Patentamt
European Patent Office
Office européen des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 09 75 9600

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2005/196147 A1 (SEO KANG S [KR] ET AL SEO KANG SOO [KR] ET AL) 8 September 2005 (2005-09-08) * figures 1,2 * * paragraphs [0006] - [0015] * * paragraphs [0034] - [0040] * * paragraphs [0047], [0048] * * paragraphs [0054] - [0058] *	1-15	
A	EP 1 420 580 A1 (THOMSON BRANDT GMBH [DE]) 19 May 2004 (2004-05-19) * paragraphs [0001] - [0010] * * paragraphs [0016] - [0019] *	1-15	
A	US 2006/267986 A1 (BAE SOO-KANG [KR] ET AL) 30 November 2006 (2006-11-30) * figures 1,4-6 * * paragraphs [0003] - [0013] * * paragraphs [0024] - [0032] * * paragraphs [0040] - [0059] *	1-15	TECHNICAL FIELDS SEARCHED (IPC)
A	WO 2004/054247 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; PHILIPS CORP [US]; GAN LIANG [CN]) 24 June 2004 (2004-06-24) * page 1, lines 4-15 * * page 2, line 3 - page 3, line 2 * * page 3, line 26 - page 6, line 31 *	1-15	

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	25 January 2011	André, Thomas

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C04)

DivX Exhibit 2005
Page 2005 - 250
IPR2020-00558

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 09 75 9600

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

25-01-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1718074 A1	02-11-2006	JP 2005269595 A	29-09-2005
		WO 2005079063 A1	25-08-2005
		KR 20060123546 A	01-12-2006
		US 2007172199 A1	26-07-2007
		US 2010310228 A1	09-12-2010
US 2005196147 A1	08-09-2005	EP 1716701 A1	02-11-2006
		WO 2005076601 A1	18-08-2005
		KR 20070028325 A	12-03-2007
		US 2009263106 A1	22-10-2009
EP 1420580 A1	19-05-2004	AU 2003293661 A1	15-06-2004
		BR 0316338 A	27-09-2005
		CN 1729684 A	01-02-2006
		WO 2004047431 A1	03-06-2004
		EP 1563677 A1	17-08-2005
		JP 2006515965 T	08-06-2006
		KR 20050086692 A	30-08-2005
		MX PA05005298 A	25-07-2005
		US 2006056819 A1	16-03-2006
US 2006267986 A1	30-11-2006	NONE	
WO 2004054247 A1	24-06-2004	AU 2003278462 A1	30-06-2004
		CN 1723696 A	18-01-2006
		EP 1574046 A1	14-09-2005
		KR 20050088414 A	06-09-2005

The examination is being carried out on the **following application documents**

Description, Pages

1-12 as published

Claims, Numbers

1-15 filed with telefax on 18-11-2010

Drawings, Sheets

1/6-6/6 as published

Reference is made to the following documents; the numbering will be adhered to in the rest of the procedure.

D1 "Text of ISO/IEC 14496-18/COR1", ITU STUDY GROUP 16 - VIDEO CODING EXPERTS GROUP -ISO/IEC MPEG & ITU-T VCEG(ISO/IEC JTC1/SC29/WG11 AND ITU-T SG16 Q6), no. N8664, 7 November 2006 (2006-11-07), XP030015158

D2 EP 1 718 074 A1 (SONY CORP [JP]) 2 November 2006 (2006-11-02)

D3 Noé, A.: "Matroska File Format", 24 June 2007 (2007-06-24), pages 1-51, Retrieved from the Internet: URL:http://web.archive.org/web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19]

D4 "Text of ISO/IEC 14496-18/FDIS", ITU STUDY GROUP 16 - VIDEO CODING EXPERTS GROUP -ISO/IEC MPEG & ITU-T VCEG(ISO/IEC JTC1/SC29/WG11 AND ITU-T SG16 Q6), no. N6215, 7 January 2004 (2004-01-07), XP030013153

1 The document D1 is a corrigendum to the standard document ISO/IEC 14496-18:2004 (see document D1, foreword), i.e. to the document D4. It is therefore considered that the subject-matter described in the document D4 is implicitly incorporated into the document D1.

Summary

2 The application does not meet the requirements of Article 84 EPC because Claims 1-10 and 12-15 lack clarity and support by the description. Claim 11 also lacks clarity.

3 Moreover, the subject-matter of Claims 1-6 and 15 is not new (Article 52(1) with Article 54(1) and (2) EPC) in view of the document D1, and Dependent Claims 7-14 do not contain any subject-matter of inventive significance (Article 52(1) with Article 56 EPC).

I. Article 84 EPC

4 The application does not meet the requirements of Article 84 EPC for the following reasons.

4.1 The expression "optimized font file" used in Claims 1-10 and 12-15 is vague and unclear and leaves the reader in doubt as to the meaning of the technical feature to which it refers, thereby rendering the definition of the subject-matter of said claim unclear (Article 84 EPC).

Indeed, since there are many ways to "optimize" a font file (for example by means of compression, as described in section 4.2 of document D6, or by removing unused glyphs, or even by "optimizing" the glyphs stored therein for a certain type of display), it is not clear which font files should be considered to be "optimized" and which should not.

As a consequence, Claims 1-10 and 12-15 also lack support by the description, contrary to Article 84 EPC, as their scope is broader than justified by the description and drawings which only provide basis for removing unused glyphs from an original font in order to "optimize" it (see paragraph [0029] and Figure 3).

4.2 Claim 1 attempts to define the subject-matter in terms of the result to be achieved by means of the features "wherein the size of the original font file is such that it cannot be stored [...]" and "wherein the size of each of the at least one optimized font files is sufficiently small [...]". Therefore, the matter for which protection is sought is not defined.

Such a definition is only allowable under the conditions elaborated in the Guidelines C-III, 4.10. In this instance, however, such a formulation is not allowable because it appears possible to define the subject-matter in more concrete terms, viz. in terms of how the effect is to be achieved.

Moreover, said features do not characterize the method defined in Claim 1, but rather the font files processed by said method and output by said method, and the playback device used for playback. Said features have therefore been ignored for the purpose of examining the claims in terms of novelty and inventive step (see point 5.1 below).

4.3 It is not clear (Article 84 EPC) how the additional method step of "segmenting the original font file" defined in Claim 3 is linked to the steps of the method of Claim 1 on which Claim 3 depends. Indeed, it is not clear from the formulation of Claim 3 whether "segmenting the original font file" merely defines a particular way of "generating at least one optimized font file", or whether said segmentation step occurs before (see paragraph [0033] of the description and Figure 5) or after the step of "generating at least one optimized font file".

It follows that Claim 3 also lacks support by the description, contrary to Article 84 EPC, as its scope is broader than justified by the description and drawings.

4.4 Claim 4 is not supported by the description, contrary to Article 84 EPC, as its scope is broader than justified by the description and drawings. Indeed, the description provides basis for creating an "optimized" font file comprising only the characters used by a movie or a portion thereof (see for example paragraphs [0022], [0026], [0027]). However, such an "optimized" font file is not "usable only for the rendering of textual elements within the corresponding portion of the multimedia file", since it is also "usable" for the rendering of any text comprising a subset of the characters used in said textual elements.

For the purpose of establishing the present opinion, Claim 4 has been interpreted in the light of the above-mentioned passages of the description.

4.5 It is not clear (Article 84 EPC) how a plurality of time segments can "collectively correspond to an overall timeline of subtitle data" as defined in Claim 11. The corresponding part of the description seems to be paragraph [0035] (and Figure 6) which does not seem to provide enough basis to clarify the claim.

II. Article 52(1) EPC

5 Maintaining the above objections, the present application does not meet the requirements of Article 52(1) EPC because the subject-matter of Independent Claims 1 and 15 is not new within the meaning of Article 54(1) and (2) EPC.

5.1 The document D1, in combination with the document D4 (see point 1 above), discloses (the references in parentheses applying to this document):

A method of generating at least one font file customized to a specific multimedia file that includes textual elements (document D1, page 1, last paragraph: "fonts can be reduced in size (subsetted) by keeping only those glyphs that are utilized in a particular text fragment"), comprising:

receiving a multimedia file including audio data, video data, and textual elements (documents D1 and D4 are part of the MPEG-4 standard specifications which describe the syntax of multimedia files and decoders therefor, see D4, foreword, for example "Part 2: Visual"; "Part 3: Audio"; "Part 14: MP4 file format"; "Part 18: Font compression and streaming") and a corresponding original font file (document D1, page 1, last paragraph: "fonts can be reduced in size (subsetted)") by a processor (it is clear that an original audio-video file as well as a text fragment to be displayed and a corresponding font file must be "received" by a "processor" if any operation is to be performed based on them); and

generating at least one optimized font file based upon the textual elements and the original font file by the processor (document D1, page 1, last paragraph: "fonts can be reduced in size (subsetted) by keeping only those glyphs that are utilized in a particular text fragment");

wherein the size of the original font file is such that it cannot be stored and dynamically accessed in the memory of a playback device during playback of the audio data, video data and textual elements of the multimedia file (see point 4.2 above; moreover, any font file having an arbitrary size fulfills this requirement provided that the playback device used for decoding said font file has sufficient capabilities);

the method characterized by:

generating at least one optimized font file including fewer characters than the original font file, and all of the characters utilized by the textual elements associated with at least a portion of the multimedia file (document D1, page 1, last paragraph: "fonts can be reduced in size (subsetted) by keeping only those glyphs that are utilized in a particular text fragment");

wherein the size of each of the at least one optimized font files is sufficiently small so that the optimized font file can be stored and dynamically accessed in the memory of a playback device during playback of the audio data, video data and textual elements in the corresponding portion of the multimedia file (see point 4.2 above; moreover, any font file having an arbitrary size fulfills this requirement provided that the playback device used for decoding said font file has sufficient capabilities).

The subject-matter of Independent Claim 1 is therefore not new (Article 52(1) with Article 54(1) and (2) EPC).

5.2 The document D1, in combination with the document D4 (see point 1 above), also discloses (the references in parentheses applying to this document):

A method of decoding a multimedia file including audio data, video data, text elements (documents D1 and D4 are part of the MPEG-4 standard specifications which describe the syntax of multimedia files and decoders therefor, see D4, foreword, for example "Part 2: Visual"; "Part 3: Audio"; "Part 14: MP4 file format"; "Part 18: Font compression and streaming") and a plurality of font files containing representations for character symbols (document D1, page 2, replacement text for subclause 5.2.3: "These two subsets can either be merged in the decoder [...]"), where each font file is marked as being associated with a specific time segment of the video data (document D1, page 2, replacement text for subclause 5.2.1, for example first paragraph: each font or subset thereof is carried in a different access unit; document D4, page 12, section 5.2.1, third paragraph: "Access units in font data streams shall be labelled and time-stamped by suitable means"), the method comprising:

separating audio data, video data, text elements and at least one font file from the multimedia file using a de-multiplexer;

supplying the audio data to an audio decoder;

supplying video data to a video decoder; and

supplying text elements and a font file to a text decoder (the four foregoing steps are implicitly part of any method for decoding multimedia files as defined above); the method characterized by:

DivX Exhibit 2005
Page 2005 - 256
IPR2020-00558

storing a first font file (document D1, page 2, replacement text for subclause 5.2.1, for example first paragraph: "The content of subsequent basic access units in such a font data stream shall replace the font or font subset data of previous basic access units"; document D1, page 2, replacement text for subclause 5.2.3: "These two subsets can either be merged in the decoder, or can be used concurrently [...]") marked as being associated with the specific time segment containing the video data provided to the video decoder (document D4, page 12, section 5.2.1, third paragraph: "Access units in font data streams shall be labelled and time-stamped by suitable means") in memory for dynamic access by the text decoder (document D1, page 2, replacement text for subclause 5.2.3: "These two subsets can either be merged in the decoder [...]", i.e. implicitly in a memory for being accessed by the text decoder); and

storing a second font file (document D1, page 2, replacement text for subclause 5.2.1, for example first paragraph: "The content of subsequent basic access units in such a font data stream shall replace the font or font subset data of previous basic access units") marked as being associated with a different time segment of the video data (document D4, page 12, section 5.2.1, third paragraph: "Access units in font data streams shall be labelled and time-stamped by suitable means") in memory for dynamic access by the text decoder (document D1, page 2, replacement text for subclause 5.2.3: "These two subsets can either be merged in the decoder [...]", i.e. implicitly in a memory for being accessed by the text decoder), when video data from the different time segment is supplied to the video decoder (document D4, page 12, section 5.2.1, third paragraph: "Access units in font data streams shall be labelled and time-stamped by suitable means").

The subject-matter of Independent Claim 15 is therefore not new (Article 52(1) with Article 54(1) and (2) EPC).

6 Dependent Claims 2-14 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to novelty and/or inventive step, the reasons being as follows.

6.1 Claims 2 and 4 (lack of novelty, Article 52(1) with Article 54(1) and (2) EPC): see document D1, page 1, last paragraph; see also point 4.4 above regarding clarity.

6.2 Claim 3 (lack of novelty, Article 52(1) with Article 54(1) and (2) EPC): see document D1, page 1, last paragraph; keeping only a selection of glyphs within a font file results in said font file being "segmented".

6.3 Claims 5 and 6 (lack of novelty, Article 52(1) with Article 54(1) and (2) EPC): the document D1, in combination with the document D4 (see point 1 above), provides an "efficient mechanism to embed font data in MPEG-4 encoded presentations" (see document D4, page vii, last paragraph), i.e. in association with audio and video data.

6.4 Claim 7 (lack of inventive step, Article 52(1) with Article 56 EPC): the document D2 discloses a method for embedding font files (paragraphs [0044]-[0046]) within multimedia files for the purpose of associating subtitles with video data (paragraphs [0002], [0004] and [0099]), wherein different subtitle portions are described by means of "SubPlayItems" (paragraphs [0044]-[0046]), each "SubPlayItem" corresponding to a specific time segment of the video (paragraph [0105] and Figure 11) and being associated with a specific font file (paragraph [0107] and Figure 11).

Confronted with the problem of optimizing each of the font files associated with each of the different "SubPlayItems", the skilled person would turn to document D1 and "optimize" each font by keeping only those glyphs which are utilized in each particular text fragment (see D1, page 1, last paragraph). By doing so, he would obtain a method according to Claim 7 without exercising any inventive activity.

Claim 7 therefore lacks an inventive step (Article 52(1) with Article 56 EPC) in view of document D2 combined with document D1.

6.5 Claims 8-11 (lack of inventive step, Article 52(1) with 56 Article EPC): the document D2 discloses associating each font file with a time segment by means of playback start-time and end-time (paragraph [0105]), and said time segments collectively "correspond" to an overall timeline of subtitle data (paragraphs [0038]-[0046]).

6.6 Claim 12 (lack of inventive step, Article 52(1) with 56 Article EPC): the document D1, in combination with the document D4 (see point 1 above), provides an "efficient mechanism to embed font data in MPEG-4 encoded presentations" (see document D4, page vii, last paragraph), i.e. in association with audio and video data; see also document D2, paragraphs [0002], [0004], [0044]-[0046] and [0099].

6.7 Claims 13 and 14 (lack of inventive step, Article 52(1) with 56 Article EPC): using a hierarchy of "tag elements" for describing subtitles and associated fonts is a well-known design option; see for example document D3, section 5.8. Claims 13 and 14 therefore lack an inventive step (Article 52(1) with 56 Article EPC) in view of document D1 taking into account the general knowledge of the skilled person.

III. Conclusion

7 It is not at present apparent which part of the application could serve as a basis for a new, allowable claim. Should the applicant nevertheless regard some particular matter as patentable, an independent claim should be filed taking account of Rule 43(1) EPC. The applicant should also indicate how the subject-matter of the new claim differs from the state of the art and the significance thereof.

DivX Exhibit 2005
Page 2005 - 259
IPR2020-00558

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference D1-03336.PCT	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2014/030747	International filing date *(day/month/year)* 17 March 2014 (17.03.2014)	Priority date *(day/month/year)* 15 March 2013 (15.03.2013)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant SONIC IP, INC.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 15 September 2015 (15.09.2015)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Authorized officer Athina Nickitas-Etienne e-mail: pt04.pct@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: David J. Bailey
KPPB LLP
2400 E. Katella, Suite 1050
Anaheim, CA 92806
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	22 AUG 2014

Applicant's or agent's file reference	FOR FURTHER ACTION
D1-03336.PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/30747	17 March 2014 (17.03.2014)	15 March 2013 (15.03.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06F 15/173 (2014.01)
USPC - 709/223, 226

Applicant DIVX, LLC

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	30 July 2014 (30.07.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/30747

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/30747

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	2-7, 9-14, 16-21	YES
	Claims	1, 8, 15	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-21	NO
Industrial applicability (IA)	Claims	1-21	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1, 8, and 15 lack novelty under PCT Article 33(2) as being anticipated by US 2012/0124191 A1 (LYON).

As per claim 1, Lyon discloses a system for delivery of content (system for managing TCP anycast requests at content delivery network nodes; abstract; paragraph [0008]), the system comprising: processing circuitry (a processor configured to execute instructions stored on a memory coupled to the processor; paragraph [0008]) configured to: receive a request to stream the content, the request being received from a user equipment device (a request for live video content from an end user is routed by one or more ISP nodes to an appropriate CDN node (receive a request to stream the content, the request being received from a user equipment device); paragraph [0010], [0013]); determine a first location of the user equipment device (an ISP often routes the request to the geographically closest CDN node (determine a first location of the user equipment device); paragraph [0011], [0013]); determine a count of user equipment devices that are located at the first location and are currently streaming the content (requests for content from users are routed to the geographically closest CDN node and determines whether the CDN node has the capacity to service the request based on number of sessions currently being services by the CDN node (determine a count of user equipment devices that are located at the first location and are currently streaming the content); paragraphs [0013], [0014]); determine whether the count meets a threshold (it is determined at the CDN node whether it has the capacity to service the request to the large user base (determine whether the count meets a threshold); paragraphs [0013], [0014]); and responsive to determining that the count meets the threshold, add a first content delivery network to a pool of one or more content delivery networks that are used to stream the content (if CDN node 300 does not have the capacity to handle a new request (responsive to determining that the count meets the threshold), the request is redirected to another CDN node via a virtual tunnel to CDN node 314. CDN node 300 may include virtual tunnels to multiple another nodes of the CDN (add a first content delivery network to a pool of one or more content delivery networks that are used to stream the content); paragraphs [0014], [0015]).

As per claim 8, Lyon discloses a method for delivery of content (process for managing TCP anycast requests at content delivery network nodes; abstract; paragraph [0008]), comprising: receiving a request to stream the content, the request being received from a user equipment device (a request for live video content from an end user is routed by one or more ISP nodes to an appropriate CDN node (receiving a request to stream the content, the request being received from a user equipment device); paragraphs [0010], [0013]); determining a first location of the user equipment device (an ISP often routes the request to the geographically closest CDN node (determining a first location of the user equipment device); paragraphs [0011], [0013]); determining a count of user equipment devices that are located at the first location and are currently streaming the content (requests for content from users are routed to the geographically closest CDN node and determines whether the CDN node has the capacity to service the request based on number of sessions currently being services by the CDN node (determining a count of user equipment devices that are located at the first location and are currently streaming the content); paragraphs [0013], [0014]); determining whether the count meets a threshold (it is determined at the CDN node whether it has the capacity to service the request to the large user base (determining whether the count meets a threshold); paragraphs [0013], [0014]); and responsive to determining that the count meets the threshold, adding, by processing circuitry, a first content delivery network to a pool of one or more content delivery networks that are used to stream the content (if CDN node 300 does not have the capacity to handle a new request (responsive to determining that the count meets the threshold), the request is redirected to another CDN node via a virtual tunnel to CDN node 314 by a processor configured to execute instructions stored on a memory coupled to the processor. CDN node 300 may include virtual tunnels to multiple another nodes of the CDN (adding, by processing circuitry, a first content delivery network to a pool of one or more content delivery networks that are used to stream the content); paragraphs [0008], [0014], [0015]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/30747

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

-***-Continued from Box V: Citations and Explanations-***-

As per claim 15, Lyon discloses a non-transitory computer-readable medium containing computer-executable instructions that, when executed by a processor, cause the processor to perform a method for delivery of content (a computer program product embodied on a computer readable storage medium; and a processor, such as a processor configured to execute instructions stored on a memory coupled to the processor for managing TCP anycast requests at content delivery network nodes; abstract; paragraph [0008]), the method comprising: receiving a request to stream the content, the request being received from a user equipment device (a request for live video content from an end user is routed by one or more ISP nodes to an appropriate CDN node (receiving a request to stream the content, the request being received from a user equipment device); paragraphs [0010], [0013]); determining a first location of the user equipment device (an ISP often routes the request to the geographically closest CDN node (determining a first location of the user equipment device); paragraphs [0011], [0013]); determining a count of user equipment devices that are located at the first location and are currently streaming the content (requests for content from users are routed to the geographically closest CDN node and determines whether the CDN node has the capacity to service the request based on number of sessions currently being services by the CDN node (determining a count of user equipment devices that are located at the first location and are currently streaming the content); paragraphs [0013], [0014]); determining whether the count meets a threshold (it is determined at the CDN node whether it has the capacity to service the request to the large user base (determining whether the count meets a threshold); paragraphs [0013], [0014]); and responsive to determining that the count meets the threshold, adding a first content delivery network to a pool of one or more content delivery networks that are used to stream the content (if CDN node 300 does not have the capacity to handle a new request (responsive to determining that the count meets the threshold), the request is redirected to another CDN node via a virtual tunnel to CDN node 314. CDN node 300 may include virtual tunnels to multiple another nodes of the CDN (adding a first content delivery network to a pool of one or more content delivery networks that are used to stream the content); paragraphs [0014], [0015]).

Claims 2, 3, 5, 9, 10, 12, 16, 17, and 19 lacks an inventive step under PCT Article 33(3) as being obvious over Lyon in view of US 2007/0271385 A1 to DAVIS et al. (hereinafter "Davis").

As per claims 2, 9, and 16, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein the first content delivery network includes a first plurality of computing devices that are part of a first data center. Davis discloses wherein the first content delivery network includes a first plurality of computing devices that are part of a first data center (CDN mapping information maps end-user IP blocks to data centers that host CDN regions (content delivery network includes a first plurality of computing devices that are part of a first data center); paragraphs [0039], [0051]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Davis, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would enable an end user client to obtain access to contents on different CDN edge servers while preserving a session state.

As per claims 3, 10, and 17, the combination of Lyon and Davis discloses the system of claim 2, the method of claim 9, and the non-transitory computer readable medium of claim 16, respectively. Lyon further discloses the pool includes a second content delivery network (if CDN node 300 does not have the capacity to handle a new request, the request is redirected to another CDN node via a virtual tunnel to CDN node 314. CDN node 300 may include virtual tunnels to multiple another nodes of the CDN (the pool includes a second content delivery network); paragraphs [0014], [0015]). However, Lyon does not disclose the second content delivery network includes a second plurality of computing devices that are part of a second data center; and the second data center is different from the first data center. Davis discloses the second content delivery network includes a second plurality of computing devices that are part of a second data center (CDN mapping information maps end-user IP blocks to data centers that host CDN regions (content delivery network includes a first plurality of computing devices that are part of a first data center); paragraphs [0039], [0051]); and the second data center is different from the first data center (CDN region 500 includes data center 1 and CDN region 502 includes data center 2 (the second data center is different from the first data center); figure 5; paragraph [0045]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Davis, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would enable an end user client to obtain access to contents on different CDN edge servers while preserving a session state.

As per claims 5, 12, and 19, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein determining the first location of the user equipment device includes retrieving at least a portion of a Domain Name Service (DNS) record corresponding to the user equipment device, the portion being indicative of at least one of a network or a network domain the user equipment device is part of. Davis discloses wherein determining the first location of the user equipment device includes retrieving at least a portion of a Domain Name Service (DNS) record corresponding to the user equipment device, the portion being indicative of at least one of a network or a network domain the user equipment device is part of (a request for content is resolved through a CDNSP-managed DNS to identify a best region. When a request for the object is made, a customer's DNS system directs the name query to the CDNSP DNS request routing mechanism (determining the first location of the user equipment device includes retrieving at least a portion of a DNS record corresponding to the user equipment device, the portion being indicative of at least one of a network domain the user equipment device is part of); paragraph [0029]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Davis, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would easily identify the location of the device and find the best server for the device.

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/30747

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

-***-Continued from Previous Supplemental Box-***-

Claims 4, 11, and 18 lacks an inventive step under PCT Article 33(3) as being obvious over Lyon in view of US 2011/0191439 A1 to DAZZI et al. (hereinafter "Dazzi").

As per claims 4, 11, and 18, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein adding the first content delivery network to the pool includes providing an encoder with an identifier of the first content delivery network, the encoder being configured to encode the content to produce encoded content and disseminate the encoded content among content delivery networks in the pool. Dazzi discloses wherein adding the first content delivery network to the pool includes providing an encoder with an identifier of the first content delivery network (the media ingestion system may encode the obtained video file into a format supported by the content distribution system and assign an identifier which may be based on where the media content was stored on the data storage cluster (providing an encoder with an identifier of the content delivery network); paragraphs [0015], [0036]), the encoder being configured to encode the content to produce encoded content and disseminate the encoded content among content delivery networks in the pool (the media ingestion system may encode the obtained video file into a format supported by the content distribution system and replicates across multiple volumes of the data storage cluster based on a set of data which is associated with the media content (the encoder being configured to encode the content to produce encoded content and disseminate the encoded content among content delivery networks in the pool); paragraphs [0036], [0037]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Dazzi, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would protect the contents during the transmissions.

Claims 6, 7, 13, 14, 20, and 21 lack an inventive step under PCT Article 33(3) as being obvious over Lyon in view of US 2012/0166633 A1 to Baumback, et al. (hereinafter "Baumback").

As per claims 6, 13, and 20, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein the first content delivery network is selected from a plurality of available content delivery networks based on a quality of service metric corresponding to the first content delivery network. Baumback discloses wherein the first content delivery network is selected from a plurality of available content delivery networks based on a quality of service metric corresponding to the first content delivery network (the processing device identifies one or more DCN service providers, from a number of CDN service providers, to use in processing a resource request based on CDN selection criteria including CDN quality of service information (wherein the first content delivery network is selected from a plurality of available content delivery networks based on a quality of service metric corresponding to the first content delivery network); paragraphs [0068], [0069]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Baumback, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would provide the best quality of service to the users.

As per claims 7, 14, and 21, Lyon discloses the system of claim 1, the method of claim 8, and the non-transitory computer readable medium of claim 15, respectively. However, Lyon does not disclose wherein the first content delivery network is selected from a plurality of available content delivery networks based on a price corresponding to the first content delivery network. Baumback discloses wherein the first content delivery network is selected from a plurality of available content delivery networks based on a price corresponding to the first content delivery network (the processing device identifies one or more DCN service providers, from a number of CDN service providers, to use in processing a resource request based on CDN selection criteria including cost information associated with processing a resource request using a particular CDN (wherein the first content delivery network is selected from a plurality of available content delivery networks based on a price corresponding to the first content delivery network); paragraphs [0068], [0069]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to have modified the system, the method, and the non-transitory computer readable medium of Lyon with the teaching of Baumback, because by doing so, the system, the method, and the non-transitory computer readable medium of Lyon would provide services to the users with lower costs.

Claims 1-21 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference D1:02359AB.PCT	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2011/068276	International filing date *(day/month/year)* 31 December 2011 (31.12.2011)	Priority date *(day/month/year)* 01 September 2011 (01.09.2011)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant SONIC IP, INC.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 23 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 04 March 2014 (04.03.2014)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Authorized officer Philippe Bécamel e-mail: pt03.pct@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID J. BAILEY
KAUTH, POMEROY, PECK & BAILEY LLP
2400 E. KATELLA, SUITE 1050
ANAHEIM, CA 92806

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	08 JUL 2013
Applicant's or agent's file reference D1:02359AB.PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2011/068276	31 December 2011	01 September 2011

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04L 9/18 (2013.01)
USPC - 380/255

Applicant DIVX, LLC

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	19 June 2013	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

   ☐ on paper

   ☐ in electronic form

   b. (time)

   ☐ in the international application as filed

   ☐ together with the international application in electronic form

   ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	3-13, 16-26, 29-105	YES
	Claims	1, 2, 14, 15, 27, 28	NO
Inventive step (IS)	Claims	None	YES
	Claims	105	NO
Industrial applicability (IA)	Claims	105	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1, 2, 14, 15, 27, 28 lack novelty under PCT Article 33(2) as being anticipated by Amini et al., hereinafter referred to as Amini.

Regarding claim 1, Amini discloses a source encoder (multi-encoder platform 220, para 0031, see fig. 2 [whose components are shown in the computing system of fig. 11, para 0068]), comprising: a processor (processor 1102, para 0068, 0069, see fig. 11); non-volatile storage containing an encoding application (memory 1104 [RAM or ROM (nonvolatile)], para 0068, 0069, see fig. 11); wherein the encoding application configures the processor to: receive source content (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2); obtain common cryptographic information (encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054); encode the source content as a plurality of streams including a plurality of alternative streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and protect the plurality of alternative streams of content using the common cryptographic information (same key is used for different streams, para 0054, 0044 [protecting the content]).

Regarding claim 14, Amini discloses a method of encoding source content as a plurality of protected streams using common cryptographic information (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2), comprising: receiving source content using a source encoder (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2); obtaining common cryptographic information using a source encoder (encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054); encoding the source content as a plurality of streams including a plurality of alternative streams of content using the source encoder (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and protecting the plurality of alternative streams of content using the source encoder and the common cryptographic information (same key is used for different streams, para 0054, 0044 [protecting the content]).

Regarding claim 27, Amini discloses a machine readable medium containing processor instructions (machine readable medium, claim 26; multi-encoder platform 220, para 0031, see fig. 2 [whose components are shown in the computing system of fig. 11, para 0068]), where execution of the instructions by a processor causes the processor to perform a process (processor 1102, para 0068, 0069, see fig. 11) comprising receiving source content using a source encoder (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2); obtaining common cryptographic information using a source encoder (encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054); encoding the source content as a plurality of streams including a plurality of alternative streams of content using the source encoder (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and protecting the plurality of alternative streams of content using the source encoder and the common cryptographic information (same key is used for different streams, para 0054, 0044 [protecting the content]).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claims 2 and 15, Amini teaches wherein the encoding application configures the processor to encode and protect the source content by configuring the processor to: encode a portion of source content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and encrypt at least one portion of the encoded portion of content so that the at least one encrypted portion can be accessed using the common cryptographic information (same key is used for different streams [which are encrypted using the encryptor 220, para 0032, see fig. 2], para 0054, 0044 [protecting the content]).

Regarding claim 28, Amini discloses wherein the machine readable medium is non-volatile memory (memory 1104 with ROM [non-volatile], para 0068, 0069, see fig. 11).

Claims 29-33, 36-40, 49-53, 56-58 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Schnell and further in view of Amini.

Regarding claim 29, Thorwirth discloses a content distribution system (system for enhancing security of content distribution, para 0018), comprising a content distribution server (content ingested on server 301 part of a content distribution network, para 0052),where the content distribution server stores a plurality of content files containing alternative streams of protected content associated with a title (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052),the alternative streams of protected content are protected using cryptographic information (the chunks are protected using different watermark payloads, para 0052), and each content file includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); wherein a server is configured to: receive a request for access to the alternative streams of protected content associated with the title from a playback device (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]);and securely provide a copy of the at least one encryption key used to encrypt the cryptographic information to the playback device (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064);and wherein the content distribution server is configured to grant the playback device access to the alternative streams of protected content (server provides access to the client based on the selection or chunks requested, para 0053). Thorwirth lacks the teaching of comprising: a DRM server; a container file; common cryptographic information. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]). Further, Schnell is in the field of segmented media content rights management (abstract, title) and teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 49, Thorwirth discloses a method of distributing content encoded as a plurality of alternative streams of protected content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052), where the alternative streams of protected content are protected using cryptographic information (the chunks are protected using different watermark payloads, para 0052) and each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058), the method comprising: receiving a request for access to the alternative streams of protected content associated with the title from a playback device using a server (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); securely providing to the playback device at least one encryption key using the server (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064), where the at least one encryption key is used to access the encrypted cryptographic information (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and granting the playback device access to the alternative streams of protected content using a content distribution server (content ingested on server 301 part of a content distribution network, para 0052; server provides access to the client based on the selection or chunks requested, para 0053).Thorwirth lacks the teaching of comprising: a DRM server; a container file; common cryptographic information. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]). Further, Schnell is in the field of segmented media content rights management (abstract, title) and teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 30, Thorwirth as modified teaches wherein the server is configured to associate a title ID with the title (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052). Thorwirth lacks the teaching of a DRM server. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004).

Regarding claim 31, Thorwirth teaches wherein server is configured to associate the cryptographic information with the title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052). Thorwirth lacks the teaching of a DRM server and a common cryptographic information. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 32, Thorwirth teaches wherein the request for access to the alternative streams of protected content associated with the title comprises a request identifying a title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052).

Regarding claim 33, Thorwirth teaches wherein the content distribution server is further configured to: receive requests for portions of at least one container file from the playback device (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and provide the requested portions of the at least one container file to the playback device (server provides access to the client based on the selection or chunks requested para 0053).

Regarding claim 36, Thorwirth teaches obtain common cryptographic information from the server (the chunks are protected using different watermark payloads, para 0052); receive source content, encode the source content as a plurality of streams including a plurality of alternative streams of content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); protect the plurality of alternative streams of content using cryptographic information (the chunks are protected using different watermark payloads, para 0052); protect the cryptographic information using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and provide a plurality of content files containing the plurality of alternative streams of protected content to the content distribution server (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052). However, Thorwirth lacks the teaching of a source encoder, common cryptographic information and a DRM server, container files. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]). Further, Schnell is in the field of segmented media content rights management (abstract, title) and teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution source encoder (multi-encoder platform 220, para 0031, see fig. 2 [whose components are shown in the computing system of fig. 11, para 0068]) with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 37, Thorwirth lacks the teaching wherein the source encoder is configured to: encode a portion of content; and encrypt at least one portion of the encoded content so that the at least one encrypted portion can be accessed using the common cryptographic information. Amini teaches wherein the source encoder is configured to: encode a portion of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and encrypt at least one portion of the encoded portion of content so that the at least one encrypted portion can be accessed using the common cryptographic information (same key is used for different streams [which are encrypted using the encryptor 220, para 0032, see fig. 2], para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 38, Thorwirth lacks the teaching wherein the source encoder is configured to write each of the alternative streams of protected content to a separate container file. However, Thorwirth shows wherein the alternative streams of protected content are written into a container file is well known in the art (sections of multiple files are created with pointers within a container file, para 0004, 0010). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file feature in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).

Regarding claim 39, Thorwirth teaches each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058), but lacks the teaching wherein the source encoder is configured to process common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 40, Thorwirth teaches wherein the source encoder is configured to encrypt at least a portion of the cryptographic information using a single encryption key and write the encrypted information to each of the container files containing the alternative streams of protected content (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058), but lacks the teaching wherein the source encoder is configured to process common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 50, Thorwirth teaches wherein the title is identified using a title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052).

Regarding claim 51, Thorwirth teaches wherein the common cryptographic information is associated with the title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052). Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 52, Thorwirth teaches wherein the request for access to the alternative streams of protected content associated with the title comprises a request identifying a title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052).

Regarding claim 53,Thorwirth teaches receiving requests for portions of at least one container file from the playback device using the content distribution server (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and providing the requested portions of the at least one container file to the playback device using the content distribution server (server provides access to the client based on the selection or chunks requested para 0053).

Regarding claim 56, Thorwirth teaches obtain common cryptographic information from the server (the chunks are protected using different watermark payloads, para 0052); receive source content, encode the source content as a plurality of streams including a plurality of alternative streams of content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); protect the plurality of alternative streams of content using cryptographic information (the chunks are protected using different watermark payloads, para 0052); protect the cryptographic information using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and provide a plurality of content files containing the plurality of alternative streams of protected content to the content distribution server (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052). However, Thorwirth lacks the teaching of a source encoder, common cryptographic information and a DRM server, container files. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]). Further, Schnell is in the field of segmented media content rights management (abstract, title) and teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution source encoder (multi-encoder platform 220, para 0031, see fig. 2 [whose components are shown in the computing system of fig. 11, para 0068]) with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 57, Thorwirth lacks the teaching of encoding a portion of content using the source encoder; and encrypting at least one portion of the encoded content using the source encoder so that the at least one encrypted portion can be accessed using the common cryptographic information. Amini teaches wherein the source encoder is configured to: encode a portion of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and encrypt at least one portion of the encoded portion of content so that the at least one encrypted portion can be accessed using the common cryptographic information (same key is used for different streams [which are encrypted using the encryptor 220, para 0032, see fig. 2], para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 58, Thorwirth lacks the teaching wherein the source encoder is configured to write each of the alternative streams of protected content to a separate container file. However, Thorwirth shows wherein the alternative streams of protected content are written into a container file is well known in the art (sections of multiple files are created with pointers within a container file, para 0004, 0010). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file feature in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of

Claims 67, 69, 84, 86, 103, 105 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Amini.

Regarding claim 67, Thorwirth discloses a playback device (client device or user requests access for playback, para 0053), comprising: a processor (client device is a personal computer 404, mobile phone 406 or consumer electronics device 408 [a processor is inherent], para 0056, see fig. 4); memory containing a client application (client device is a personal computer 404, mobile phone 406 or consumer electronics device 408 [a memory is inherent], para 0056, see fig. 4); wherein the client application configures the processor to: request a file identifying a plurality of alternative streams of protected content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]),where each of the alternative streams of protected content are encrypted using cryptographic information (the chunks are protected using different watermark payloads, para 0052); request portions of content from at least the plurality of alternative streams of protected content (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); access the protected content using the cryptographic information (content ingested on server 301 part of a content distribution network, para 0052; server provides access to the client based on the selection or chunks requested, para 0053); and playback the content (playback of content on the client device, para 0053). Thorwirth lacks the teaching of a top level index file obtain the common cryptographic information. However, Thorwirth teaches a top level index file is well known in the art (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 84, Thorwirth discloses a method of performing adaptive bitrate streaming using a plurality of alternative streams of protected content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052 [chunks differ in encoding and bit rat : adaptive bitrate streaming system, para 0005]), where each of the streams of protected content is protected using cryptographic information (), the method comprising: requesting a file identifying a plurality of alternative streams of protected content using a playback device (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]), where each of the alternative streams of protected content are encrypted using cryptographic information (the chunks are protected using different watermark payloads, para 0052); obtaining the cryptographic information using the playback device (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); requesting portions of content from at least the plurality of alternative streams of protected content using the playback device (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); accessing the protected content using the playback device and the cryptographic information (content ingested on server 301 part of a content distribution network, para 0052; server provides access to the client based on the selection or chunks requested, para 0053); and playing back the content using the playback device (playback of content on the client device, para 0053).Thorwirth lacks the teaching of a top level index file obtain the common cryptographic information. However, Thorwirth teaches a top level index file is well known in the art (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 103, Thorwirth discloses a machine readable medium containing processor instructions, where execution of the instructions by a processor causes the processor to perform a process (implementation process, para 0047 [CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052]) comprising: request a file identifying a plurality of alternative streams of protected content (link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]), where each of the alternative streams of protected content are encrypted using cryptographic information (the chunks are protected using different watermark payloads, para 0052); obtaining the cryptographic information (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); requesting portions of content from at least the plurality of alternative streams of protected content (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); accessing the protected content using the cryptographic information (content ingested on server 301 part of a content distribution network, para 0052; server provides access to the client based on the selection or chunks requested, para 0053); and playing back the content (playback of content on the client device, para 0053).Thorwirth lacks the teaching of a top level index file obtain the common cryptographic information. However, Thorwirth teaches a top level index file is well known in the art (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claims 69 and 86, Thorwirth lacks the teaching wherein each of the alternative streams of protected content is contained within a separate container file; and the top level index file identifies a container file containing each of the alternative streams. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).

Regarding claim 105, Thorwirth lacks the teaching wherein the machine readable medium is non-volatile memory. Amini teaches wherein the machine readable medium is non-volatile memory (memory 1104 with ROM [non-volatile], para 0068, 0069, see fig. 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the non-volatile memory for storing the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Claims 3, 16 lack an inventive step under PCT Article 33(3) as being obvious over Amini and in view of Schnell.

Regarding claims 3 and 16, Amini lacks the teaching wherein the encoding application configures the processor to obtain common cryptographic information by configuring the processor to: send a request to a DRM server for common cryptographic information; and receive the common cryptographic information from the DRM server. However, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Further, Schnell teaches a DRM system that sends cryptographic information to the media device (DRM system 118 with domain controller 124 and license server 126, where the DRM system encrypts the media content, licenser server can issue DRM licenses before media content by various media devices, para 0022, 0023 [media device 202 also includes DRM platform 21 to receive the DRM license, para 0034]).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No: PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 4-8, 17-21 lack an inventive step under PCT Article 33(3) as being obvious over Amini and in view of Thorwirth.

Regarding claims 4 and 17, Amini teaches the common cryptographic content and the plurality of alternative streams of protected content (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054), but lacks the teaching wherein a title is associated with the common cryptographic content and the plurality of alternative streams of protected content. Thorwirth teaches a title is associated with the cryptographic content and the plurality of alternative streams of protected content (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the title feature in the invention of Amini for the purpose of providing the content distribution server a link that includes a unique identifier that enables the server to determine the information to be embedded in the chunk (Thorwirth, para 0057).

Regarding claims 5 and 18, Amini lacks the teaching wherein the encoding application configures the processor to write each of the alternative streams of protected content to a separate container file. However, Thorwirth shows wherein the alternative streams of protected content are written into a container file is well known in the art (sections of multiple files are created with pointers within a container file, para 0004, 0010). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file feature in the invention of Amini for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).

Regarding claims 6 and 19, Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054), but lacks the teaching of the cryptographic information encrypted using at least one encryption key to each of the container files containing the alternative streams of protected content. Thorwirth teaches each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption key in the invention of Amini for the purpose of providing an encryption key unique to a specific user or client device and the encrypted data is delivered securely and individually to the user and/or client device (Thorwirth, para 0058).

Regarding claims 7 and 20, Amini teaches wherein writing the at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054), but lacks the teaching of writing to the container files containing the alternative streams of protected content comprises encrypting the at least a portion of the common cryptographic information written to each of the container files using at least one encryption key. Thorwirth teaches each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption key in the invention of Amini for the purpose of providing an encryption key unique to a specific user or client device and the encrypted data is delivered securely and individually to the user and/or client device (Thorwirth, para 0058).

Regarding claims 8 and 21, Amini teaches wherein writing the at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054), but lacks the teaching of writing to the container files containing the alternative streams of protected content comprises encrypting the at least a portion of the common cryptographic information written to each of the container files using the same encryption key. However, Thorwirth teaches each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). Further, encrypting the content for protection is well known in the art and the specifics (using same encryption key) would have been a matter of design choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption key in the invention of Amini for the purpose of providing an encryption key unique to a specific user or client device and the encrypted data is delivered securely and individually to the user and/or client device (Thorwirth, para 0058).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 9, 22 lack an inventive step under PCT Article 33(3) as being obvious over Amini and in view of Thorwirth and further in view of Soroushian et al., hereinafter referred to as Soroushian.

Regarding claims 9 and 22, Amini lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Claims 10-13, 23-26 lack an inventive step under PCT Article 33(3) as being obvious over Amini and in view of Thorwirth and further in view of Soroushian and even further in view of Schnell.

Regarding claims 10 and 23, Amini teaches common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054) wherein, but lacks the teaching wherein the encoding application configures the processor to write a DRMHeader element to the TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Amini for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 11 and 24, Amini teaches common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054) wherein, but lacks the teaching wherein the common cryptographic information is a set of encryption keys; the encoding application configures the processor to: encrypt the set of encryption keys using at least one encryption key; and write the encrypted set of encryption keys to the DRMHeader element of each of the Matroska container files. Thorwirth teaches a set of encryption keys for each chunk of content ((the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption key in the invention of Amini for the purpose of providing an encryption key unique to a specific user or client device and the encrypted data is delivered securely and individually to the user and/or client device (Thorwirth, para 0058). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Further, Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Amini for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claims 12 and 25, Amini teaches wherein: the source content includes a stream of video (bitstreams are series of compressed data units (video frames), para 0037); and the encoding application configures the processor to: encode a frame of video (encoding parameters generate several compressed data units of the original; para 0037); protect the encoded frame of video by encrypting at least a portion of the encoded frame of video (encryption is done, para 0041, encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Amini lacks the teaching to write a BlockGroup element to a Matroska container file including a DRMinfo element identifying the at least one portion of the encoded frame of video that is encrypted and at least one encryption key from the set of encryption keys used to access the at least one encrypted portion of the encoded frame of video. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches a DRMinfo element identifying the protected encoded element and using an encryption key from the set of encryption keys used to access the encrypted encoded content (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036; tracks objects 22 which has the track attributes and segment data to identify the content, para 0037).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Amini for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 13 and 26, Amini lacks the teaching wherein the encoding application further configures the processor to: generate an index for each Matroska container file during the encoding of each of the streams of protected content; and write a Cues element containing the index to the indexed Matroska container file. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments, para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Amini for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Claims 34, 35, 41-48, 54, 55, 59-66 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Schnell and further in view of Amini and even further in view of Soroushian.

Regarding claim 34, Thorwirth lacks the teaching wherein the plurality of container files are Matroska container files. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Regarding claim 35, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 41, Thorwirth lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of.

Regarding claim 42, Thorwirth lacks the teaching wherein the source encoder is configured to write a DRMHeader element to a TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 43, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information and write the encrypted set of encryption keys to the DRMHeader element of each of the Matroska container files. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Further, Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 44, Thorwirth wherein: the source content includes a stream of video (content ingested on server 301 part of a content distribution network, para 0052 [video]); and configured to: encode a frame from the stream of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); protect the encoded frame of video by encrypting at least a portion of the encoded frame of video (the chunks are protected using different watermark payloads, para 0052), but lacks the teaching wherein to write a BlockGroup element to a Matroska container file including a DRMinfo element identifying the at least one portion of the encoded frame of video that is encrypted and at least one encryption key from the set of encryption keys used to access the at least one encrypted portion of the encoded frame of video. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches a DRMinfo element identifying the protected encoded element and using an encryption key from the set of encryption keys used to access the encrypted encoded content (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036; tracks objects 22 which has the track attributes and segment data to identify the content, para 0037).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 45, Thorwirth lacks the teaching wherein the source encoder is configured to: generate an index for each Matroska container file during the encoding of each of the streams of protected content; and write a Cues element containing the index to the indexed Matroska container file. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments, para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 46, Thorwirth lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Regarding claim 47, Thorwirth lacks the teaching wherein the source encoder is configured to write a DRMHeader element to a TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 48, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 54, Thorwirth lacks the teaching wherein the plurality of container files are Matroska container files. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 55, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 59, Thorwirth lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Regarding claim 60, Thorwirth lacks the teaching wherein the source encoder is configured to write a DRMHeader element to a TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 61, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information and write the encrypted set of encryption keys to the DRMHeader element of each of the Matroska container files. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Further, Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of

Regarding claim 62, Thorwirth wherein: the source content includes a stream of video (content ingested on server 301 part of a content distribution network, para 0052 [video]); and configured to: encode a frame from the stream of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); protect the encoded frame of video by encrypting at least a portion of the encoded frame of video (the chunks are protected using different watermark payloads, para 0052), but lacks the teaching wherein to write a BlockGroup element to a Matroska container file including a DRMinfo element identifying the at least one portion of the encoded frame of video that is encrypted and at least one encryption key from the set of encryption keys used to access the at least one encrypted portion of the encoded frame of video. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches a DRMinfo element identifying the protected encoded element and using an encryption key from the set of encryption keys used to access the encrypted encoded content (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036; tracks objects 22 which has the track attributes and segment data to identify the content, para 0037).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 63, Thorwirth lacks the teaching wherein the source encoder is configured to: generate an index for each Matroska container file during the encoding of each of the streams of protected content; and write a Cues element containing the index to the indexed Matroska container file. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments, para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 64, Thorwirth lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Regarding claim 65, Thorwirth lacks the teaching wherein the source encoder is configured to write a DRMHeader element to a TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 66, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Claims 70-74, 87-93 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Amini and Schnell.

Regarding claims 70 and 87, Thorwirth lacks the teaching wherein: the container files containing each of the alternative streams of protected content comprise at least one header including the common cryptographic information and information that describes the encoding of the stream of protected content; and the top level index file identifies the location of the at least one header within each container file. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010). Further, Schnell teaches one header including the cryptographic information and information that describes the encoding of the stream of the protected content and identifies the location of one header within each container file (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated with the tracks or video tracks, para 0037, see fig. 2).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]).

Regarding claims 71 and 88, Thorwirth teaches wherein cryptographic information is a set of encryption keys (the chunks are protected using different watermark payloads, para 0052). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 72, Thorwirth teaches wherein set of encryption keys is encrypted (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the client application configures the processor to securely receive cryptographic information used to unencrypt the set of encryption keys (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Regarding claims 73 and 92, Thorwirth lacks the teaching wherein the client application configures the processor to obtain the common cryptographic information by requesting at least one header of a container file identified in the top level index file. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010). Further, Schnell teaches one header including the cryptographic information and information that describes the encoding of the stream of the protected content and identifies the location of one header within each container file (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated with the tracks or video tracks, para 0037, see fig. 2).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]).

Regarding claims 74 and 93, Thorwirth lacks the teaching wherein: each container file containing one of the alternative streams of protected content further comprises an index; and the client application configures the processor to request a portion of content from one of the container files by configuring the processor to: request at least a portion of an index from the container file; identify the portion of the container file containing a specific portion of content using the index; and request the identified portion of the container file. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009), request a portion of content from one of the container files (client device authenticated requests access to choose content choice for playback, para 0053); identify the portion of the container file containing a specific portion of content (link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and request the identified portion of the container file (server provides access to the client based on the selection or chunks requested, para 0053). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010). Further, Schnell teaches one header including the cryptographic information and information that describes the encoding of the stream of the protected content and identifies the location of one header within each container file (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated with the tracks or video tracks, para 0037, see fig. 2).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004).

Regarding claim 89, Thorwirth teaches wherein: the set of encryption keys is encrypted so that it is accessible using cryptographic information obtained by the playback device (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the method further comprising obtaining cryptographic information using the playback device (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064).

Regarding claim 90, Thorwirth teaches wherein the set of encryption keys is encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the playback device securely obtains the at least one encryption key (copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064).

Regarding claim 91, Thorwirth lacks the teaching wherein the at least one encryption key is encrypted using at least one encryption key included in the cryptographic information bound to the playback device. However, Thorwirth teaches wherein the set of encryption keys is encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the playback device securely obtains the at least one encryption key (copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064). Furthermore, defining multiple encryptions is well known in the art and the specifics would have been a matter of design choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption features in the invention for the purpose of providing protection against unauthorized used and distribution of content (Thorwirth, para 0058).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 68, 75-83, 85, 94-102, 104 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Amini and further in view of Schnell and further in view of Soroushian.

Regarding claims 68 and 85, Thorwirth teaches wherein the alternative streams of protected content are alternative streams of protected video (CDN stores six alternative chunks [video] created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); each of the alternative streams of protected video includes information indicating portions of frames of video that are encrypted and identifying at least a portion of the cryptographic information used to access the encrypted portions of the frames of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and the client application configures the processor to: obtain a protected frame of video from one of the alternative streams of protected video (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); obtain information indicating a portion of the protected frame of video that is encrypted (the chunks are protected using different watermark payloads. para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); identify at least a portion of the cryptographic information that is used to access the encrypted portion of the protected frame using the information (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device [this encryption key identifies the encrypted content to be sent], para 0058, hashing or encrypting the encrypted content and key, para 0064); decrypt the encrypted portion of the protected frame of video using the identified portion of the common cryptographic information (decryption of streamed file utilizes the content keys based on the sections, para 0059). Thorwirth lacks the teaching of common cryptographic information and a DRM server and decoding the frames of video. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Furthermore, Soroushian teaches a playback can identify and decode the data (decode the appropriate data, para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the decoder in the invention of Thorwirth for the purpose of decoding multimedia and present audio, video and subtitle information in a synchronized manner (Soroushian, para 0003).

Regarding claims 75 and 94, Thorwirth lacks the teaching wherein the plurality of container files are Matroska container files. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).
Regarding claims 76 and 95, Thorwirth lacks the teaching wherein the common cryptographic information is stored in a common DRM Header element contained within a Tracks element within each of the Matroska container files containing the alternative streams of protected content. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of

Regarding claims 77 and 96, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information and write the encrypted set of encryption keys to the DRMHeader element. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 78 and 97, Thorwirth teaches wherein set of encryption keys is encrypted (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the client application configures the processor to securely receive cryptographic information used to unencrypt the set of encryption keys (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of cryptographic information stored in a DRM header element. Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 79 and 98, Thorwirth lacks the teaching wherein the client application configures the processor to obtain the DRM Header element by requesting a Tracks element from one of the Matroska container files identified in the top level index file. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 80 and 99, Thorwirth lacks the teaching wherein: each Mastroska container file containing an alternative stream of protected content further comprises an index contained within a Cues element; and the client application configures the processor to request a portion of content from one of the Matroska container files by configuring the processor to: request at least a portion of a Cues element from a Matroska container file containing one of the alternative streams of protected content; identify a portion of the Matroska container file containing a specific portion of content using at least one CueTrackPosition element within the Cues element; and request the portion of the Matroska container file identified by the at least one CueTrackPosition element. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).
Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]) and identifying a portion of the MKV container using CueTrackPosition element (table with hierarchical index identifiers with CUEPOS_ID, table above para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments, para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claims 81 and 100, Thorwirth lacks the teaching wherein the index comprises a plurality of CueTrackPosition elements that identify the location of a plurality of Cluster elements within the Matroska container file. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]) and identifying a portion of the MKV container using CueTrackPosition element (table with hierarchical index identifiers with CUEPOS_ID, table above para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments [segments can be interpreted as track elements or comprising of cluster elements], para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 82 and 101, Thorwirth lacks the teaching wherein: each Cluster element contains a plurality of BlockGroup elements including encoded portions of content; a Cue Track Position element indexes each Cluster element; and each CueTrackPosition element includes the size of the Cluster element that it indexes. Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments [segments can be interpreted as track elements or comprising of cluster elements], para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it). Furthermore, defining the specifics of file headers and clusters would have been a matter of design choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).
Regarding claims 83 and 102, Thorwirth teaches wherein the alternative streams of protected content are alternative streams of protected video (CDN stores six alternative chunks [video] created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); each of the alternative streams of protected video includes information indicating portions of frames of video that are encrypted and identifying at least a portion of the cryptographic information used to access the encrypted portions of the frames of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and the client application configures the processor to: obtain a protected frame of video from one of the alternative streams of protected video (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); obtain information indicating a portion of the protected frame of video that is encrypted (the chunks are protected using different watermark payloads, para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); identify at least a portion of the cryptographic information that is used to access the encrypted portion of the protected frame using the information (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device [this encryption key identifies the encrypted content to be sent], para 0058, hashing or encrypting the encrypted content and key, para 0064); decrypt the encrypted portion of the protected frame of video using the identified portion of the common cryptographic information (decryption of streamed file utilizes the content keys based on the sections, para 0059). Thorwirth lacks the teaching of common cryptographic information, a Matroska container file and a DRM server and decoding the frames of video. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Furthermore, Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]) and further teaches a playback can identify and decode the data (decode the appropriate data, para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the decoder in the invention of Thorwirth for the purpose of decoding multimedia and present audio, video and subtitle information in a synchronized manner (Soroushian, para 0003).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 104, Thorwirth teaches wherein the alternative streams of protected content are alternative streams of protected video (CDN stores six alternative chunks [video] created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); each of the alternative streams of protected video includes information indicating portions of frames of video that are encrypted and identifying at least a portion of the cryptographic information used to access the encrypted portions of the frames of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and the client application configures the processor to: obtain a protected frame of video from one of the alternative streams of protected video (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); obtain information indicating a portion of the protected frame of video that is encrypted (the chunks are protected using different watermark payloads, para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); identify at least a portion of the cryptographic information that is used to access the encrypted portion of the protected frame using the information (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device [this encryption key identifies the encrypted content to be sent], para 0058, hashing or encrypting the encrypted content and key, para 0064); decrypt the encrypted portion of the protected frame of video using the identified portion of the common cryptographic information (decryption of streamed file utilizes the content keys based on the sections, para 0059). Thorwirth lacks the teaching of common cryptographic information and a DRM server and decoding the frames of video. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Furthermore, Soroushian teaches a playback can identify and decode the data (decode the appropriate data, para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the decoder in the invention of Thorwirth for the purpose of decoding multimedia and present audio, video and subtitle information in a synchronized manner (Soroushian, para 0003).

Claims 1-105 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference 02549.PCT	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2013/043181	International filing date *(day/month/year)* 29 May 2013 (29.05.2013)	Priority date *(day/month/year)* 28 June 2012 (28.06.2012)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant SONIC IP, Inc.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 11 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 31 December 2014 (31.12.2014)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Authorized officer Philippe Bécamel e-mail: pt03.pct@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID J. BAILEY
KAUTH, POMEROY, PECK & BAILEY, LLP
2400 E. KATELLA, SUITE 1050
ANAHEIM, CA 92806

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	06 DEC 2013

Applicant's or agent's file reference	FOR FURTHER ACTION
02549.PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2013/043181	29 May 2013	28 June 2012

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04N 5/783 (2013.01)
USPC - 386/343

Applicant DIVX, LLC

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	27 November 2013	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished.

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-20	YES
	Claims	None	NO
Inventive step (IS)	Claims	None.	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations:

See Supplemental Box

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 1, 2, 4, 6, 7, 11, 13, 14, 16, 19, 20, lack an inventive step under PCT Article 33(3) as being obvious over Cornelio et al., hereinafter referred to as Cornelio in view of Brusewitz et al., hereinafter referred to as Brusewitz.

Regarding claims 1, 19, 20, Cornelio discloses a method for fast startup of video playback of encoded media using at least two video streams, where the media is encoded as at least a first video stream and a second video stream, the method comprising [claims 1, 19] (a method which includes a video encoder 106 that dynamically adjusts the compression ratio, para 0026; by selecting the play button, a play request is sent and in response to the play request the video encoder 106 decodes the video stream and initiates the playing of the video at a current selected high quality image [startup of video playback], para 0082; the server 132 consists of video files 134 and 140, wherein the images of the video file 140 have a higher resolution higher quality than compared to video file 134, and when switching the input file at the client 110 the video transmitter 136 begins transmission from the video file 140 [second video stream] at a frame that corresponds to the last frame sent from video file 134 [first video stream], and the switching does cause a skip in the video as it is viewed at the client [interpreted as fast startup of video playback], para 0033, 0036, 0037), a network interface; memory; and a processor; wherein the processor is configured by a playback application to [claim 19] (a processor 122 executes sequences of instructions contained in the dynamic memory of client 110, to decode a video stream and transmit to the display 112 for playback, para 0022, 0023, 0025) a machine readable medium containing processor instructions, where execution of the instructions by a processor causes the processor to perform a process [claim 20] (a processor 122 executes sequences of instructions contained in the dynamic memory of client 110, to decode a video stream and transmit to the display 112 for playback, para 0022, 0023, 0025) comprising:
identifying a location within the first video stream at which to commence playback using a playback device (the user provides an input to switch between transmission rates of a video, upon which the video transmitter 136 begins transmission from the video file 140 at a frame that corresponds to the last frame sent [identifying a location] from video file 134 [first video stream], para 0036, 0037; a user selects a pause button to pause the playback of a video, and upon which the processor 122 transmits a message to the server 132, the message includes data that identifies a particular frame displayed in the video image 114, in response to message the video selector 130 locates a corresponding frame associated with the selected frame within the least compressed video file and sends it to the client as a snapshot [as the switch causes the playback from the identified frame corresponding to the location it is interpreted as location at which to commence playback], para 0039);
identifying a frame of video in the second video stream that corresponds with the identified location in the first video stream using the playback device (the server 132 stores data that indicates the correlation between the frames in video file 134 and the frames in video file 140, and when switching the video transmitter 136 begins transmission from the video file 140 at a frame [identifying a frame in the second video stream] that corresponds to the last frame sent from video file 134 [identified location in the first video stream], para 0036, 0037; the processor 122 transmits a message to the server 132, the message includes data that identifies a particular frame displayed in the video image 114, in response to message the video selector 130 locates a corresponding frame [corresponds with the identified location] associated with the selected frame [identifying a frame of video in the second video stream] within the least compressed video file and sends it to the client as a snapshot, para 0039);
requesting the identified frame of video in the second video stream using the playback device (when switching the video transmitter 136 begins transmission from the video file 140 [second video stream] at a frame that corresponds to the last frame sent from video file 134 [transmitting the identified frame of the video file 140 corresponding to the video file 134 is interpreted as requesting the identified frame], para 0036, 0037; the processor 122 transmits a message to the server 132, in response to message the video selector 130 locates a corresponding frame [interpreted as requesting the identified frame] associated with the selected frame within the least compressed video file and sends it to the client as a snapshot, para 0039);
decoding the identified frame of video in the second video stream using the playback device (the processor 122 transmits a message to the server 132, in response to message the video selector 130 locates a corresponding frame [interpreted as requesting the identified frame] associated with the selected frame within the least compressed video file and sends it to the client as a snapshot, para 0039; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device, para 0048, 0049);
displaying the decoded frame of video in the second video stream while buffering video from the first video stream (a user continues viewing the video in real time [interpreted as while buffering video from the first video stream] while selected snapshot are being prepared and set to the users device, para 0055; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device, para 0048, 0049), but lacks the teaching of requesting and buffering video from the first video stream starting at the identified location using the playback device; decoding video from the first video stream using the playback device; and displaying the decoded video from the first video stream when the first video stream is sufficiently buffered for continuous playback.

Cont. in Next Supplemental Box

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claims 1, 19, 20 (Cont.)

However, Cornelio teaches requesting from the first video stream starting at an identified location using the playback device (in response to receiving an image request, an initial image location is identified within a video stream, the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 708 the initial image is retrieved and at step 710 the image is sent to the client device, para 0097-0099); decoding video from the first video stream using the playback device (at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112, para 0100); and displaying the decoded video from the first video stream (at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112, para 0100). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Cornelio to incorporate requesting from the first video stream starting at the identified location using the playback device; decoding video from the first video stream using the playback device; and displaying the decoded video from the first video stream into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches buffering video from the video stream and displaying the video stream when the video stream is sufficiently buffered for continuous playback (the low resolution copy of the detailed image is transmitted via the transmission channel 20 and buffer 23 to decoder 24, which displays the low resolution image, col.5, lines 54-65; figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image [buffering video from the video stream] and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as displaying sufficiently buffered for continuous playback], col.7, lines 30-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate requesting and buffering video from the first video stream starting at the identified location and displaying the decoded video from the first video stream when the first video stream is sufficiently buffered for continuous playback into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 27-29).

Regarding claim 2, Cornelio further teaches wherein the first video stream is encoded at a first bitrate, the second video stream is encoded at a second bitrate, and the first bitrate is smaller than the second bitrate (the storage 144 contains multiple versions of a video file and contains a video file 134 that has been pre compressed at a compression ratio lower resolution [first bitrate] and lower quality, and a second video file 140 that has been pre-compressed using a different lower compression ratio which is of higher resolution [second bitrate] and higher quality than the images represented in video file 134, para 0033). However, to establish first bitrate is smaller or greater than the second bitrate would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings to incorporate the first bitrate is greater than the second bitrate into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).

Regarding claim 4, Cornelio further teaches wherein the first video stream is encoded at a first resolution, the second video stream is encoded at a second resolution, and the first resolution is smaller than the second resolution (the storage 144 contains multiple versions of a video file and contains a video file 134 that has been pre compressed at a compression ratio lower resolution [first resolution] and lower quality, and a second video file 140 that has been pre-compressed using a different lower compression ratio which is of higher resolution [second resolution] and higher quality than the images represented in video file 134, para 0033). However, to establish first resolution is smaller or greater than the second resolution would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings to incorporate the first resolution is greater than the second resolution into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).

Regarding claim 6, Cornelio further teaches wherein identifying a frame of video in the second video stream that corresponds with the identified location in the first video stream comprises determine a frame of video in the second stream that corresponds to the identified location within the first video stream at which to commence playback (the server 132 stores data that indicates the correlation between the frames in video file 134 and the frames in video file 140, and when switching the video transmitter 136 begins transmission from the video file 140 at a frame [identifying a frame in the second video stream] that corresponds to the last frame sent from video file 134 [identified location in the first video stream], para 0036, 0037), but lacks the teaching of comprises requesting an index of the second video stream and using the index to determine a frame of video in the second stream.
However, Cornelio teaches requesting an index of the video stream and using the index to determine a frame of video in the stream that corresponds to the identified location within the first video stream at which to commence playback (fig.8 shows a video stream 800 and includes image data 185-195 corresponding to image data locations 802-824, upon a request for a next image is received from a client 102 a direction indicator and the frame offset is utilized, when the next image is identified to have a frame offset of 3 and a direction indicator of "back", and upon the current image location corresponding to the image location 812 then the next image is identified to at location 806 with the image data 187). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Cornelio to incorporate requesting an index of the second video stream and using the index to determine a frame of video in the second stream into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 7, Cornelio further teaches wherein: the first video stream and the second video stream are stored in separate container files (the server 132 includes the storage 144 which stores video file 134 and video file 140 [separate container files], and contains multiple versions of a video file and contains a video file 134 that has been pre compressed at a compression ratio lower resolution and lower quality [first video stream], and a second video file 140 that has been pre-compressed using a different lower compression ratio which is of higher resolution [second video stream] and higher quality than the images represented in video file 134, para 0033, 0036), but lacks the teaching of and requesting and buffering video from the first video stream starting at the identified location using a playback device further comprises requesting portions of files from at least one remote server via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device.
However, Cornelio teaches requesting from the first video stream starting at the identified location using the playback device further comprises requesting portions of files from at least one remote server via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device (in response to receiving an image request, an initial image location is identified within a video stream, the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112, para 0097-0100; the web server 102 and the client 110 are connected through the internet, and the client 110 includes video display 12 and a video decoder 108 implemented on a HTTP client such as a browser, and is dynamically linked to web browser [the client requests files from the web server via the HTTP browser interpreted as remote server via Hypertext Transfer Protocol byte range requests], para 0020, 0021). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Cornelio to incorporate requesting from the first video stream starting at the identified location using a playback device further comprises requesting portions of files from at least one remote server via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches comprises buffering video from the video stream (figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as buffering video from the video stream], col.7, lines 30-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate decoding the buffered video and displaying the decoded video into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 53-57).

Regarding claim 11, Cornelio further teaches comprising configuring the playback device to decode the identified frame of video in the second video stream based upon the encoding of the identified frame of video in the second video stream (the processor 122 transmits a message to the server 132, in response to message the video selector 130 locates a corresponding frame [interpreted as requesting the identified frame] associated with the selected frame within the least compressed video file and sends it to the client as a snapshot, para 0039; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device [as the identified frame of the video file is decoded it is inherent that the video was encoded], para 0048, 0049).

Regarding claim 13, Cornelio further teaches comprising decoding the video from the first video stream and displaying the decoded video (the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 708 the initial image is retrieved and at step 710 the image is sent to the client device at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112, para 0100), but lacks the teaching of decoding the buffered video.
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches comprises decoding the buffered video and displaying the decoded video (the low resolution copy of the detailed image is transmitted via the transmission channel 20 and buffer 23 to decoder 24, which displays the low resolution image, col.5, lines 54-65; figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted decoding the buffered video], col.7, lines 30-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate decoding the buffered video and displaying the decoded video into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 53-57).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 14, Cornelio further teaches comprising configuring the playback device to decode content from the first video stream based upon the encoding of the first video stream (the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 708 the initial image is retrieved and at step 710 the image is sent to the client device at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112 [as the identified frame of the video file is decoded it is inherent that the video was encoded interpreted as based upon the encoding of the first video stream], para 0100).

Regarding claim 16, Cornelio further teaches displaying the decoded frame of video while buffering portions of video from the video stream further (a user continues viewing the video in real time [interpreted as while buffering video from the first video stream] while selected snapshot are being prepared and set to the users device, para 0055; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device, para 0048, 0049), but lacks the teaching of displaying the decoded frame of video in the trick play stream comprises displaying the same decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches comprises displaying the decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display (the low resolution copy of the detailed image is transmitted via the transmission channel 20 and buffer 23 to decoder 24, which displays the low resolution image, col.5, lines 54-65; figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as displaying the decoded frame of video continuously until video stream are adequately buffered], col.7, lines 30-58). Furthermore, to establish to display the same decoded frame continuously would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate displaying the decoded frame of video in the trick play stream while buffering portions of video from the video stream further comprises displaying the same decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 27-29).

Claims 3, 5, 10, 17, 18, lack an inventive step under PCT Article 33(3) as being obvious over Cornelio in view of Brusewitz and further in view of Baldwin et al., hereinafter referred to as Baldwin.

Regarding claim 3, Cornelio further teaches the second video stream (shown above in claim 1), but lacks the teaching of wherein the second video stream is a trick play stream and each frame of the second video stream is encoded as an intra frame.
Baldwin is in the field of a trick mode support for video on demand with long intra frame intervals (title, abstract) and teaches wherein the video stream is a trick play stream and wherein frames of the video stream are encoded as an intra frame (fig.3 shows a trick mode implementation with multiple streams 302a-302e encoded with staggered intra frame intervals [interpreted as trick play stream], each shaded area represents an encoded intra frame, the video stream 302a represents media content encoded with an intra-frame interval of 10 seconds, para 0021-0024). Furthermore, to establish that each frame of the second video stream is encoded as an intra frame would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Baldwin to incorporate wherein the second video stream is a trick play stream and each frame of the second video stream is encoded as an intra frame into the invention of Cornelio. The motivation would have been to provide staggered intra frames to provide quicker responses when the server receives request it selects the nearest future intra frame (see Baldwin para 0007).

Regarding claim 5, Cornelio further teaches the second video stream (shown above in claim 1), but lacks the teaching of wherein the second video stream is a trick play stream and each frame of the second video stream is encoded as an intra frame.
Baldwin is in the field of a trick mode support for video on demand with long intra frame intervals (title, abstract) and teaches wherein the video stream is a trick play stream and wherein frames of the video stream are encoded as an intra frame (fig.3 shows a trick mode implementation with multiple streams 302a-302e encoded with staggered intra frame intervals [interpreted as second video stream is a trick play stream], each shaded area represents an encoded intra frame, the video stream 302a, 302b represents media content encoded with an intra-frame interval of 10 seconds, para 0021-0024). Furthermore, to establish that each frame of the second video stream is encoded as an intra frame would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Baldwin to incorporate wherein the second video stream is a trick play stream and each frame of the second video stream is encoded as an intra frame into the invention of Cornelio. The motivation would have been to provide staggered intra frames to provide quicker responses when the server receives request it selects the nearest future intra frame (see Baldwin para 0007).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 10, Cornelio lacks the teaching of wherein the first video stream is selected from a plurality of alternative video streams. Baldwin is in the field of a trick mode support for video on demand with long intra frame intervals (title, abstract) and teaches wherein the first video stream is selected from a plurality of alternative video streams (a stream selector 112 controls selection of appropriate video streams based on client request, and selects one stream from a set of video streams, based on the user requests, if the user requests by selecting a play control function then the stream is selected from a set of normal rate forward playing video streams, and when the user selects a fast forward control function then a stream is selected from a set of fast forward streams [interpreted s alternative video streams], para 0016). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Baldwin to incorporate wherein the first video stream is selected from a plurality of alternative video streams into the invention of Cornelio. The motivation would have been to provide staggered intra frames to provide quicker responses when the server receives request it selects the nearest future intra frame (see Baldwin para 0007).

Regarding claim 17, Cornelio lacks the teaching of wherein the identified frame of video in the trick play stream is downloaded together with at least part of at least one subsequent frame in the stream.
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches wherein the frame of video in the stream is downloaded together with at least part of at least one subsequent frame in the stream (figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as frame of video in the stream is downloaded together with one subsequent frame in the stream], col.7, lines 30-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate wherein the identified frame of video in the trick play stream is downloaded together with at least part of at least one subsequent frame in the stream into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 27-29)
Baldwin is in the field of a trick mode support for video on demand with long intra frame intervals (title, abstract) and teaches wherein the identified frame of video stream is a trick play stream (fig.3 shows a trick mode implementation with multiple streams 302a-302e encoded with staggered intra frame intervals [interpreted as trick play stream], each shaded area represents an encoded intra frame, the video stream 302a represents media content encoded with an intra-frame interval of 10 seconds [identified frame], para 0021-0024). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Baldwin to incorporate the identified frame of video in the trick play stream into the invention of Cornelio. The motivation would have been to provide staggered intra frames to provide quicker responses when the server receives request it selects the nearest future intra frame (see Baldwin para 0007).

Regarding claim 18, Cornelio further teaches displaying the decoded frame of video while buffering portions of video from the video stream further (a user continues viewing the video in real time [interpreted as while buffering video from the first video stream] while selected snapshot are being prepared and set to the users device, para 0055; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device, para 0048, 0049), but lacks the teaching of wherein displaying the decoded frame of video in the trick play stream further comprises displaying the same decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display.
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches comprises displaying the decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display (the low resolution copy of the detailed image is transmitted via the transmission channel 20 and buffer 23 to decoder 24, which displays the low resolution image, col.5, lines 54-65; figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as displaying the decoded frame of video continuously until video stream are adequately buffered], col.7, lines 30-58). Furthermore, to establish to display the same decoded frame continuously would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate displaying the decoded frame of video in the trick play stream while buffering portions of video from the video stream further comprises displaying the same decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 27-29).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of

Claim 8 lacks an inventive step under PCT Article 33(3) as being obvious over Cornelio in view of Brusewitz and further in view of Soroushian et al., hereinafter referred to as Soroushian.

Regarding claim 8, Cornelio lacks the teaching of wherein the first video stream and the second video stream are stored in separate Extensible Binary Markup Language (EBML) container files.
Soroushian is in the field of to provide critical information or playback data included in a multimedia content to be decoded and presented (abstract) and teaches wherein the first video stream and the second video stream are stored in separate Extensible Binary Markup Language (EBML) container files (fig.4 shows a multimedia file 40 which includes Extensible Binary Markup Language (EBML) element 41 and further includes the tracks section 45 information which includes video data, playback data, para 0023). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate wherein the first video stream and the second video stream are stored in separate Extensible Binary Markup Language (EBML) container files into the invention of Cornelio. The motivation would have been optimize the process of decoding and presenting partially available multimedia content including critical information (see Soroushian para 0007).

Claims 9, 12, 15, lack an inventive step under PCT Article 33(3) as being obvious over Cornelio in view of Brusewitz and further in view of Thorwirth.

Regarding claim 9, Cornelio further teaches comprising retrieving a file using the playback device that identifies the first video stream and the second video stream (a user selects a pause button to pause the playback of a video, and upon which the processor 122 transmits a message to the server 132, the message includes data [retrieving a file] that identifies a particular frame displayed in the video image 114, in response to message the video selector 130 locates a corresponding frame associated with the selected frame [that identifies first video stream and the second video stream] within the least compressed video file and sends it to the client as a snapshot, para 0039; the user provides an input to switch between transmission rates of a video, upon which the video transmitter 136 begins transmission from the video file 140 [second video stream] at a frame that corresponds to the last frame sent from video file 134 [first video stream], para 0036, 0037), but lacks the teaching of comprising retrieving a top level index file using the playback device.
Thorwirth is in the field of enhance the security of playlists composed for a client device with encoding information in the playlists (abstract) and teaches retrieving a top level index file using the playback device (the playlist encodes information using a sequence of links that refer to chunks, and each chunk differs in watermark information, the content retrieved [retrieving the encoding information] using a playlist exhibits an individual sequence of watermarked chunks that are encoded information [determine the encoding], para 0046; an index within a container file allows fast access to individual sections/chunks, and the chunks are retrieved by a client via the playlist and each is encoded at a different bitrate by the adaptive bitrate streaming system, the SMIL top level index file and the indexes within each of the container files provide a complete index to all of the alternative chunks for different sections of a piece of content, para 0009). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate retrieving a top level index file using the playback device into the invention of Cornelio. The motivation would have been to provide enhanced security of content distribution using individualized playlists (see para 0018).

Regarding claim 12, Cornelio further teaches wherein configuring the playback device to decode the identified frame of video in the second video stream based upon the encoding of the identified frame of video in the second video stream (the processor 122 transmits a message to the server 132, in response to message the video selector 130 locates a corresponding frame [interpreted as requesting the identified frame] associated with the selected frame within the least compressed video file and sends it to the client as a snapshot, para 0039; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device [as the identified frame of the video file is decoded it is inherent that the video was encoded interpreted as based upon the encoding of the second video stream], para 0048, 0049), but lacks the teaching of comprises using a top level index to locate encoding information for the second video stream and retrieving the encoding information to determine the encoding of the second video stream.
Thorwirth is in the field of enhance the security of playlists composed for a client device with encoding information in the playlists (abstract) and teaches using a top level index to locate encoding information for the video stream (in an adaptive streaming system the source media is often organized on a media server by using a top level index file pointing to a number of alternate streams that contain actual video and audio data, further the source media is encoded at multiple bit rates and the client device switches between streaming the different encodings depending on the available resources, para 0009) and retrieving the encoding information to determine the encoding of the video stream (the playlist encodes information using a sequence of links that refer to chunks, and each chunk differs in watermark information, the content retrieved [retrieving the encoding information] using a playlist exhibits an individual sequence of watermarked chunks that are encoded information [determine the encoding], para 0046; an index within a container file allows fast access to individual sections/chunks, and the chunks are retrieved by a client via the playlist and each is encoded at a different bitrate by the adaptive bitrate streaming system, the SMIL top level index file and the indexes within each of the container files provide a complete index to all of the alternative chunks for different sections of a piece of content, para 0009). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate using a top level index to locate encoding information for the video stream and retrieving the encoding information to determine the encoding of the video stream into the invention of Cornelio. The motivation would have been to provide enhanced security of content distribution using individualized playlists (see para 0018).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 15, Cornelio further teaches wherein configuring the playback device to decode content from the first video stream based upon the encoding of the first video stream (the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 708 the initial image is retrieved and at step 710 the image is sent to the client device at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112 [as the identified frame of the video file is decoded it is inherent that the video was encoded interpreted as based upon the encoding of the first video stream], para 0100), but lacks the teaching of comprises using a top level index to locate encoding information for the first video stream and retrieving the encoding information to determine the encoding of the first video stream.
Thorwirth is in the field of enhance the security of playlists composed for a client device with encoding information in the playlists (abstract) and teaches using a top level index to locate encoding information for the video stream (in an adaptive streaming system the source media is often organized on a media server by using a top level index file pointing to a number of alternate streams that contain actual video and audio data, further the source media is encoded at multiple bit rates and the client device switches between streaming the different encodings depending on the available resources, para 0009) and retrieving the encoding information to determine the encoding of the video stream (the playlist encodes information using a sequence of links that refer to chunks, and each chunk differs in watermark information, the content retrieved [retrieving the encoding information] using a playlist exhibits an individual sequence of watermarked chunks that are encoded information [determine the encoding], para 0046; an index within a container file allows fast access to individual sections/chunks, and the chunks are retrieved by a client via the playlist and each is encoded at a different bitrate by the adaptive bitrate streaming system, the SMIL top level index file and the indexes within each of the container files provide a complete index to all of the alternative chunks for different sections of a piece of content, para 0009). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate using a top level index to locate encoding information for the video stream and retrieving the encoding information to determine the encoding of the video stream into the invention of Cornelio. The motivation would have been to provide enhanced security of content distribution using individualized playlists (see para 0018).

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference 03351AB.PCT	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2014/039852	International filing date *(day/month/year)* 28 May 2014 (28.05.2014)	Priority date *(day/month/year)* 30 May 2013 (30.05.2013)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant SONIC IP, INC.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☒	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 01 December 2015 (01.12.2015)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Authorized officer Yukari Nakamura e-mail: pt07.pct@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Jason D. Wolfe
KPPB LLP
2400 E. Katella, Suite 1050
Anaheim, CA 92806
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	05 DEC 2014
Applicant's or agent's file reference 03351A8.PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/39852	28 May 2014 (28.05.2014)	30 May 2013 (30.05.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04N 21/2387 (2014.01)
CPC - G06F 3/04817

Applicant SONIC IP, INC.

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [x] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to th IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Fom PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	21 October 2014 (21.10.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:

   ☐ paid additional fees.

   ☐ paid additional fees under protest and, where applicable, the protest fee.

   ☐ paid additional fees under protest but the applicable protest fee was not paid.

   ☒ not paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fee must be paid.

Group I: Claims 1-18 are directed toward a method, system, and non-transitory computer-readable storage medium for supporting video streaming with trick play.

Group II: Claims 19-41 are directed toward a method, system, and non-transitory computer-readable storage medium for video playback with trick play.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I include encoding video into multiple adaptive bitrate streams; receiving a playlist request for one of the adaptive bitrate streams; and sending a playlist identifying the stored files of the selected stream, which are not present in Group II.

The special technical features of Group II include playing back video from the down loaded selected stream files; downloading the trick play files based on the playlist; and playing back video from the downloaded trick play files, which are not present in Group I.

The common technical features shared by Groups I and II are a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor to execute the steps of: downloading files of encoded video from a selected stream of encoded video; sending and receiving a trick play playlist request corresponding to the selected stream; and sending and receiving a trick play playlist identifying files of encoded video from a trick play stream of encoded video corresponding to the selected stream.

However, these common features are previously disclosed by US 2012/0311094 A1 to Biderman, D et al. (hereinafter "Biderman"). Biderman discloses a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor to execute the steps (system may be implemented with a processor executing instructions stored on a memory, paragraph [0179]) of: downloading files of encoded video from a selected stream of encoded video (player device downloads and uses a standard playlist including URLs referring to all of the content comprising segmented media files, which the player then downloads in order, paragraphs [0010] and [0047]); sending and receiving a trick play playlist request corresponding to the selected stream; and sending and receiving a trick play playlist identifying files of encoded video from a trick play stream of encoded video corresponding to the selected stream (player device may request and download from a server an I-frame playlist for the content that allows playback at a faster than normal rate, called a "trick play" mode, paragraphs [0010] and [0055]).

Since the common technical features are previously disclosed by the Biderman reference, these common features are not special and so Groups I and II lack unity.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

   ☐ all parts.

   ☒ the parts relating to claims Nos. 1-18

Form PCT/ISA/237 (Box No. IV) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	2, 6, 8, 12, 14 and 18	YES
	Claims	1, 3-5, 7, 9-11, 13 and 15-17	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-18	NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1, 3-5, 7, 9-11, 13 and 15-17 lacks novelty under PCT Article 33(2) as being anticipated by US 2012/0170642 A1 to Braness, J et al. (hereinafter "Braness").

As per claim 1, Braness discloses a method of supporting video streaming with trick play, comprising: encoding video into multiple adaptive bitrate streams and a corresponding trick play stream (a method is provided for visual search of media encoded for adaptive bitrate streaming using trick play streams, paragraph [0008]), each of the streams comprising files of encoded video (the EBML file may contain the trick play stream in which visual search of media encoded is with trick play stream, paragraphs [0008], [0023]); storing the files for each stream (Files generated by a source encoder may be stored on an HTTP server for streaming to playback devices, paragraph [0050]); receiving a playlist request for a selected one of the adaptive bitrate streams (the top level index SMIL file (playlist) can be generated when a playback device requests the commencement of playback of the encoded media in which media encoded may be for adaptive bitrate streaming, paragraphs [0008], [0070]); sending a playlist identifying the stored files of the selected stream (each of the alternative portions of encoded video may be written (sending) to a separate container file in which the playback device can use the top level index file to identify the URI for a more appropriate alternative stream (selected stream) paragraphs [0027], [0101]); receiving a playlist request for the trick play stream (the index may enable the playback device to use multiple byte range requests to select portions of the file containing the trick play stream which may be through HTTP server, paragraph [0044]) and sending a playlist identifying the stored files of the trick play stream (the playback device may use the SMIL file (playlist) to identify the portions of the container file (stored files) to download in which the container file contains the trick play stream, paragraphs [0027], [0070]).

As per claim 7, Braness discloses a system for supporting video streaming with trick play, comprising: an encoder to encode video into multiple adaptive bitrate streams and a corresponding trick play stream (a method is provided for visual search of media encoded for adaptive bitrate streaming using trick play streams, paragraph [0008]), each of the streams comprising files of encoded video (the EBML file may contain the trick play stream in which visual search of media encoded is with trick play stream, paragraphs [0008], [0023]); a download server to store the files for each stream (Files generated by a source encoder may be stored on an HTTP server for streaming to playback devices, paragraph [0050]); and a management server to: receive a playlist request for a selected one of the adaptive bitrate streams (the top level index SMIL file (playlist) can be generated when a playback device requests the commencement of playback of the encoded media in which media encoded may be for adaptive bitrate streaming in which a playback device may request the top level index file resident on the server (management server), paragraphs [0008], [0070], [0095]); send a playlist identifying the stored files of the selected stream (each of the alternative portions of encoded video may be written (sending) to a separate container file in which the playback device can use the top level index file to identify the URI for a more appropriate alternative stream (selected stream) paragraphs [0027], [0101]); receive a playlist request for the trick play stream (the index may enable the playback device to use multiple byte range requests to select portions of the file containing the trick play stream which may be through HTTP server, paragraph [0044]); and send a playlist identifying the stored files of the trick play stream (the playback device may use the SMIL file (playlist) to identify the portions of the container file (stored files) to download in which the container file contains the trick play stream, paragraphs [0027], [0070]).

As per claim 13, Braness discloses a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor (processor is provided that is configured by a source encoder application stored in the memory, paragraph [0027]) to: encode video into multiple adaptive bitrate streams (media encoded may be for adaptive bitrate streaming, paragraph [0008]) and a corresponding trick play stream, each of the streams comprising files of encoded video (the index information may enable the playback device to request byte ranges that may correspond to Cluster elements within the Matroska container file that may contain specific portions of encoded media through HTTP from the server, paragraph [0044]); store the files for each stream (Files generated by a source encoder may be stored on an HTTP server for streaming to playback devices, paragraph [0050]); receive a playlist request for a selected one of the adaptive bitrate streams (the top level index SMIL file (playlist) can be generated when a playback device requests the commencement of playback of the encoded media in which media encoded may be for adaptive bitrate streaming, paragraphs [0008], [0070]); send a playlist identifying the stored files of the selected stream (each of the alternative portions of encoded video may be written (sending) to a separate container file in which the playback device can use the top level index file to identify the URI for a more appropriate alternative stream (selected stream) paragraphs [0027], [0101]); receive a playlist request for the trick play stream (the index may enable the playback device to use multiple byte range requests to select portions of the file containing the trick play stream which may be through HTTP server, paragraph [0044]); and send a playlist identifying the stored files of the trick play stream (the playback device may use the SMIL file (playlist) to identify the portions of the container file (stored files) to download in which the container file contains the trick play stream, paragraphs [0027], [0070]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

-***-Continued from Box V: Citations and Explanations-***-
As per claims 3, 9 and 15, Braness discloses the method of claim 1, the system of claim 7 and the computer readable medium of claim 13. Braness further discloses wherein: the files in each stream are associated with successive time codes (the frames of the trick play stream are stored within Cluster elements having time codes corresponding to the Cluster elements of the alternative stream (successive time codes), paragraph [0042]); the playlist request for the selected stream specifies a current time code; and the playlist for the selected stream identifies files in the selected stream that are associated with successive time codes greater than the current time code (a Cluster element has a timecode associated with it, and each subsequent Block element specifies the timecode relative to the Cluster timecode, and the playback request will specify a target Cluster using a CueTime, paragraphs [0075] and [0082]).

As per claims 4, 10 and 16, Braness discloses the method of claim 3, the system of claim 9 and the computer readable medium of claim 15. Braness further discloses wherein: the playlist request for the trick play stream (a playback device requests the top level index file resident on the server and uses the index information to identify the streams that are available to the playback device in which Playback of trick play streams, [0095]) includes a trick play time code that is greater than the current time code; and the trick play playlist identifies files in the trick play stream associated with successively decreasing time codes that are each less than the trick play time code (playback requests indicate a CueTime to start, and a user may reverse direction through a trick play file having timecodes corresponding to the regular play file, paragraphs [0042], [0046], [0074], and [0082]).

As per claim 5, Braness discloses the method of claim 1. Braness further discloses wherein: the encoding includes encoding the video based on a distinct combination of an encoding bitrate and a video frame rate for each stream (the portion of video is encoded in each stream as a single closed group of pictures starting with an IDR frame in which streams that encode the same media content may be in different ways and/or at different bitrates (distinct combination) to enable adaptive bitrate streaming, paragraphs [0042], [0046]); and the encoding bit rate and video frame rate for the trick play stream are less than the encoding bitrates and video frame rates, respectively, for the adaptive bitrate streams (the trick play stream video may be encoded at a lower bitrate, frame rate and a lower resolution that may be with respect to the source video, writing each of the alternative portions of encoded video to a separate container file in which source media may be encoded as a number of alternative streams for adaptive bitrate streaming, paragraphs [0008], [0041], [0042]).

As per claim 11, Braness discloses the system of claim 7. Braness further discloses wherein: the encoder is further configured to encode the video based on a distinct combination of an encoding bitrate and a video frame rate for each stream (the portion of video is encoded in each stream as a single closed group of pictures starting with an IDR frame in which streams that encode the same media content may be in different ways and/or at different bitrates (distinct combination) to enable adaptive bitrate streaming, paragraphs [0042], [0046]); and the encoding bit rate and video frame rate for the trick play stream are less than the encoding bitrates and video frame rates, respectively, for the adaptive bitrate streams (the trick play stream video may be encoded at a lower bitrate, frame rate and a lower resolution that may be with respect to the source video, writing each of the alternative portions of encoded video to a separate container file in which source media may be encoded as a number of alternative streams for adaptive bitrate streaming, paragraphs [0008], [0041], [0042]).

As per claim 17, Braness discloses the computer readable medium of claim 13. Braness further discloses wherein: the instruction to cause the processor to encode include instructions to cause the processor (processor is configured by a source encoder application stored in the memory in which a user instruction is provided to perform a visual search using the trick play stream, paragraphs [0027], [0074]) to encode the video based on a distinct combination of an encoding bitrate and a video frame rate for each stream (the portion of video is encoded in each stream as a single closed group of pictures starting with an IDR frame in which streams that encode the same media content may be in different ways and/or at different bitrates (distinct combination) to enable adaptive bitrate streaming, paragraphs [0042], [0046]); and the encoding bit rate and video frame rate for the trick play stream are less than the encoding bitrates and video frame rates, respectively, for the adaptive bitrate streams (the trick play stream video may be encoded at a lower bitrate, frame rate and a lower resolution that may be with respect to the source video, writing each of the alternative portions of encoded video to a separate container file in which source media may be encoded as a number of alternative streams for adaptive bitrate streaming, paragraphs [0008], [0041], [0042]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

-***-Continued from Previous Supplemental Box-***-
Claims 2, 8 and 14 lack an inventive step under PCT Article 33(3) as being obvious over Braness in view of US 2013/0019273 A1 to Ma, K et al. (hereinafter "Ma").

As per claims 2, 8 and 14, Braness discloses the method of claim 1, the system of claim 7 and the computer readable medium of claim 13. Braness further discloses wherein: the encoded video in the files corresponding to the adaptive bitrate streams comprises encoded video frames (media encoded may be for adaptive bitrate streaming in which encoded video may be written each of alternative portions to a separate container file that uses the source encoder, paragraph [0008]); and the encoded video in the files for the trick play stream (encoded video may be written each of alternative portions to a separate container file that uses the source encoder in which trick play stream may be written to a separate container file, paragraph [0008]). However, Braness fail to disclose including non-key frames each encoded based on video from one or more previous video frames, and key frames interspersed among the non-key frames, each of the key frames encoded independent of previous video frames; comprises key frames without non-key frames. Ma discloses including non-key frames each encoded based on video from one or more previous video frames (fast forward uses bursts of consecutive frames (both key frames and non-key frames) in which the first (D*F/ R) frames of each segment are played out, where F is the frame rate of the encoded video and in which all key frames within the previously parsed segment should be used before proceeding to step 412 that may be to retrieve and parse a new segment, paragraphs [0007], [0031]), and key frames interspersed among the non-key frames, each of the key frames encoded independent of previous video frames; comprises key frames without non-key frames (fast forward uses bursts of consecutive frames (both key frames and non-key frames) (interspersed) in which once the trick play bitrate is selected, processing proceeds to step 214 in which the next segment (independent of previous video frames) is downloaded such that it adheres to the selected trick play bitrate in which the segment is parsed to extract the key frames (without non-key frames) and processing proceeds to step 216, paragraph [0025]). It would have been a matter of obvious experimentation to one of ordinary skill in the art at the time of the invention to modify Braness's invention to include including non-key frames each encoded based on video from one or more previous video frames, and key frames interspersed among the non-key frames, each of the key frames encoded independent of previous video frames; comprises key frames without non-key frames, as taught by Ma, for the benefit of providing a method that includes faster data rate for normal playout using key and non-key frames.

Claims 6, 12 and 18 lack an inventive step under PCT Article 33(3) as being obvious over Braness in view of US 2012/0311094 A1 to Biderman, D et al.(hereinafter " Biderman").

As per claim 6, Braness discloses the method of claim 1. However, Braness fails to disclose wherein: the storing includes storing the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein. Biderman discloses wherein: the storing includes storing the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein (Multiple media files may be stored on the server in which media files may be retrieved using the URIs (corresponding list of network addresses) for those files in the play list in which Indexer 440 may create files with a listing of an order for identifiers corresponding to each file created by segmenter 430, paragraphs [0052], [0139], [0144]); and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein (a server provides the play list file 1001 that may contain the two different sets of URLs (identifying stored files) that may allow either 1 x playback or fast forward or reverse playback (trick play) in which a play list file may include Uniform Resource Identifiers (URIs) (list of network addresses) that may direct the client to the segmented media files stored on a server, paragraphs [0047], [0167]). It would have been a matter of obvious experimentation to one of ordinary skill in the art at the time of the invention to modify Braness's invention, to include wherein: the storing includes storing the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein, as taught by Biderman, for the benefit of providing single large file to store media content that can be used by the client for retrieving portion of contents based on the URIs.

As per claim 12, Braness discloses the system of claim 7. However, Braness fails to disclose wherein: the download server is configured to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein. Biderman discloses wherein: the download server is configured to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein (Multiple media files may be stored on the server (download server) in which the URIs may identify a location from which a client can download a supplementary media file and in which media files may be retrieved using the URIs (corresponding list of network addresses) for those files in the play list in which Indexer 440 may create files with a listing of an order for identifiers corresponding to each file created by segmenter 430, paragraphs [0052], [0139], [0144]); and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein (a server provides the play list file 1001 that may contain the two different sets of URLs (identifying stored files) that may allow either 1 x playback or fast forward or reverse playback (trick play) in which a play list file may include Uniform Resource Identifiers (URIs) (list of network addresses) that may direct the client to the segmented media files stored on a server, paragraphs [0047], [0167]). It would have been a matter of obvious experimentation to one of ordinary skill in the art at the time of the invention to modify Braness's invention to include wherein: the download server is configured to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein, as taught by Biderman, for the benefit of providing single large file to store media content that can be used by the client for retrieving portion of contents based on the URIs.

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

-***-Continued from Previous Supplemental Box-***-
As per claim 18, Braness discloses the computer readable medium of claim 13. However, Braness fails to disclose wherein: the instruction to cause the processor to store include instructions to cause the processor to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein. Biderman discloses wherein: the instruction to cause the processor to store include instructions to cause the processor (processor is configured by a source encoder application stored in the memory in which a user instruction is provided to perform a visual search using the trick play stream, paragraphs [0027], [0074]) to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein (Multiple media files may be stored on the server (download server) in which the URIs may identify a location from which a client can download a supplementary media file and in which media files may be retrieved using the URIs (corresponding list of network addresses) for those files in the play list in which Indexer 440 may create files with a listing of an order for identifiers corresponding to each file created by segmenter 430, paragraphs [0052], [0139], [0144]); and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein (a server provides the play list file 1001 that may contain the two different sets of URLs (identifying stored files) that may allow either 1 x playback or fast forward or reverse playback (trick play) in which a play list file may include Uniform Resource Identifiers (URIs) (list of network addresses) that may direct the client to the segmented media files stored on a server, paragraphs [0047], [0167]). It would have been a matter of obvious experimentation to one of ordinary skill in the art at the time of the invention to modify Braness's invention to include wherein: the instruction to cause the processor to store include instructions to cause the processor to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein, as taught by Biderman, for the benefit of providing single large file to store media content that can be used by the client for retrieving portion of contents based on the URIs.

Claim 1-18 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference D1.01221.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 08/87999	International filing date *(day/month/year)* 22 December 2008 (22.12.2008)	(Earliest) Priority Date *(day/month/year)* 02 January 2008 (02.01.2008)
Applicant DIVX, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the drawings to be published with the abstract is Figure No. 1

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/87999

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04N 7/12 (2009.01)
USPC - 348/390.1
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC - 348/390.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 348/384.1; 725/87 (see search terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWest(PGPB,USPT,EPAB,JPAB), Google Scholar, USPTO
(Search Terms: video, media, compression, encoding,resolution, frame rate, sub sample, enhancement, key frame)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 2007/0234391 A1 (Hunter et al.) 04 October 2007 (04.10.2007) entire document especially para [0012], para [0153-0154], para [0152], para [0154] and [0176], para [0058], para [0059], para [0091]	1-3, 7, 9-12, 16-21 ---------- 4-6, 8, 13-15, 22, and 23
Y	US 2002/0136298 A1 (Anantharamu et al.) 26 September 2002 (26.09.2002) entire document especially para [0019], para [0030], para [0022], para [0035]	4-6, 8, 13-15, 22, and 23

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07 February 2009 (07.02.2009)	19 MAR 2009
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
DAVID J. BAILEY
KAUTH, POMEROY, PECK & BAILEY LLP
P.O. BOX 19152
IRVINE, CA 92623

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	19 MAR 2009

Applicant's or agent's file reference	FOR FURTHER ACTION
D1:01221.PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 08/87999	22 December 2008 (22.12.2008)	02 January 2008 (02.01.2008)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04N 7/12 (2009.01)
USPC - 348/390.1

Applicant DIVX, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	07 February 2009 (07.02.2009)	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/87999

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

   a. type of material

      ☐ a sequence listing

      ☐ table(s) related to the sequence listing

   b. format of material

      ☐ on paper

      ☐ in electronic form

   c. time of filing/furnishing

      ☐ contained in the international application as filed

      ☐ filed together with the international application in electronic form

      ☐ furnished subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/87999

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	4-6, 8, 12-15, 19, 22, and 23	YES
	Claims	1-3, 7, 9-11, 16-18, 20, and 21	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-23	NO
Industrial applicability (IA)	Claims	1-23	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-3, 7, 9-11, 16-18, 20, and 21 lack novelty under PCT Article 33(2) as being anticipated by US 2007/0234391 A1 to Hunter et al. (hereinafter 'Hunter').

As per claim 1, Hunter discloses a method of encoding a media file for playing back, comprising: extracting a video track from an original media file, where content is encoded in the video track (para [0012]); using the encoded content to encode an application enhancement track, where encoding the application enhancement track includes discarding at least some of the content (para [0153-0154]); and creating a media file including the content from the original media file encoded in a video track and an accompanying application enhancement track (para [0154]).

As per claim 2, Hunter further discloses information is discarded from the content by sub-sampling the content (para [0153]).

As per claim 3, Hunter further discloses sub-sampling the content further comprises reducing a resolution scale of the content by a particular factor to generate the application enhancement track (para [0152]).

As per claim 7, Hunter further discloses the application enhancement track contains only video (para [0154]).

As per claim 9, Hunter further discloses creating a media file including the content from the original media file and the accompanying application enhancement track further comprises: re-encoding the content to maximize compression regardless of a size or frequency of time periods between key frames to create a compressed video track possessing the same resolution and frame rate as the video track (para [0012] Note: desired resolution); and creating a media file including the compressed video track and the accompanying application enhancement track (para [054]); wherein the media file including the compressed video track and the application enhancement track is smaller than the original media file (para [0152]).

As per claim 10, Hunter further discloses the content is compressed content (para [0154]).

As per claim 11, Hunter further discloses a method of decoding a media file for playing back, comprising: obtaining a media file containing compressed content and an accompanying application enhancement track which is a subset of the compressed content (para [0153] - [0154]); playing back the compressed content (para [0154]); and decoding frames of the application enhancement track at a rate proportional to a visual- search speed and from a location determined by the portion of the compressed content most recently played back (para [0154] and [0178]).

As per claim 16, Hunter further discloses the application enhancement track is part of the media file and is the compressed content at a reduced frame rate and at a reduced resolution (para [0152]).

As per claim 17, Hunter further discloses a system for playback of a media file, comprising: a media server configured to generate at least one application enhancement track from an original media file, the at least one application enhancement track having at least one frame in common with the original media file and being substantially smaller in file size than the original media file (para [0152]); and a client processor in network communication with the media server and configured to send requests for the original media file to the media server, the media server configured to transmit the requested original media file along with the at least one application enhancement track (para [0154]).

As per claim 18, Hunter further discloses the client processor further comprises a playback engine configured to decode the application enhancement track and to determine portions of the application enhancement track required to comply with user playback instructions (para [0154]).

As per claim 20, A media player comprising: a user interface configured to receive user instructions (para [0058]); and a playback engine configured to decode a media file containing content and an accompanying application enhancement track, which is a subset of the content (para [0153]); wherein the playback engine is configured to commence playback of the content in response to a user instruction received via the user interface (para [0059]); wherein the playback engine is configured to select portions of the application enhancement track to decode and playback in response to receipt of a user instruction received via the user interface and the portion of the content most recently played back by the playback engine (para [0091]).

---- Please see continuation sheet ----

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/87999

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box No. V.2. Citations and explanations:

As per claim 21, Hunter further discloses the playback engine is configured to commence playback of the content in response to receipt of a user instruction received via the user interface and from a location determined based upon the portion of the application enhancement track most recently played back by the playback engine (para [0154] and [0178]).

Claims 12, and 19 lack an inventive step under PCT Article 33(3) as being obvious over Hunter.

As per claim 12, Hunter does not specifically disclose the application enhancement track includes only key-frames. However Hunter does disclose an enhancement track that contains only a library of video patterns (para [0154]). It would have been obvious to one of ordinary skill in the art to combine the key frames with the video patterns taught by Hunter as a matter of routine design since this would include more key data for the enhancement track.

As per claim 19, Hunter does not specifically disclose the application enhancement track contains only key frames. However Hunter does disclose an enhancement track that contains only a library of video patterns (para [0154]). It would have been obvious to one of ordinary skill in the art to combine the key frames with the video patterns taught by Hunter as a matter of routine design since this would include more key data for the enhancement track.

Claims 4-6, 8, 13-15, 22, and 23 lack an inventive step under PCT Article 33(3) as being obvious over Hunter in view of US 2002/0136298 A1 to Anantharamu et al. (hereinafter 'Anantharamu').

As per claim 4, Hunter does not disclose sub-sampling the content further comprises reducing a frame rate of the content by a particular factor to generate the application enhancement track. However in an analogous art Anantharamu discloses sub-sampling the content further comprises reducing a frame rate of the content by a particular factor to generate the application enhancement track (para [0019]). It would have been obvious to one of ordinary skill in the art to combine the video encoding method of Hunter with the frame rate manipulation taught by Anantharamu since this would further compress the data of the video being encoded.

As per claim 5, Hunter further discloses creating the media file further comprises embedding portions of the accompanying application enhancement track throughout the video track encoding the content (para [0154]).

As per claim 6, Hunter further discloses creating the media file further comprises incorporating the accompanying application enhancement track as a block within the media file (para [0154]).

As per claim 8, Anantharamu further discloses the application enhancement track contains key frames spaced at specific time intervals between each key-frame (para [0030]).

As per claim 13, Hunter does not specifically disclose further comprising at least one delta frame placed within a constant time difference to adjacent frames. However in an analogous art Anantharamu does disclose further comprising at least one delta frame placed within a constant time difference to adjacent frames (para [0022]). It would have been obvious to one of ordinary skill in the art to combine the video encoding method of Hunter with the frame rate manipulation taught by Anantharamu since this would further compress the data of the video being encoded.

As per claim 14, Anantharamu further discloses only key-frames are decoded when a predetermined visual-search speed is exceeded (para [0035]).

As per claim 15, Anantharamu further discloses a select number of key-frames are skipped along with any associated delta frames when a predetermined visual-search speed is exceeded (para [0035]).

As per claim 22, Hunter does not disclose the application enhancement track is part of the media file and is a sequence of key frames time stamped with the time stamps of the corresponding frames of the content. However in an analogous art Anantharamu does disclose the application enhancement track is part of the media file and is a sequence of key frames time stamped with the time stamps of the corresponding frames of the content (para [0022] Note: Table). It would have been obvious to one of ordinary skill in the art to combine the video encoding method of Hunter with the frame rate manipulation taught by Anantharamu since this would further compress the data of the video being encoded.

As per claim 23, Hunter further discloses the key frames are lower resolution relative to a resolution of the corresponding frames of the content (para [00153]).

Claims 1-23 have industrial application as defined by PCT Article 33(4), because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference D1:01383.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 09/46588	International filing date *(day/month/year)* 08 June 2009 (08.06.2009)	(Earliest) Priority Date *(day/month/year)* 06 June 2008 (06.06.2008)
Applicant DIVX, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the language, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the title,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

   a. the figure of the drawings to be published with the abstract is Figure No. 1

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 09/46588

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06T 11/00 (2009.01)
USPC - 345/471
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC: 345/471

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 345/467, 471, 948, 551; 715/230-232, 248, 249

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST(USPT,PGPB,EPAB,JPAB); Google scholar Search terms: multimedia, audio, video, font near2 file, custom same font, textual information, generat$ near2 font near2 file, custom near2 font near2 file, text$ information, optimiz$ near2 font, optimiz$ near2 text$, original font, original text, generat$ near2 font near2 file

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 2006/0168639 A1 (GAN et al.) 27 July 2006 (27.07.2006) entire document especially abstract; Fig. 2; para [0002]-[0003], [0005]-[0006], [0014]-[0019], [0021].	1-10, 25-27 ----- 11-24
Y	US 2008/0120330 A1 (REED et al.) 22 May 2008 (22.05.2008) entire document especially para [0137]-[0139], [0282]-[0283]	11-24
A	US 2008/0120342 A1 (REED et al.) 22 May 2008 (22.05.2008) entire document	1-27

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 July 2009 (13.07.2009)	28 JUL 2009
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
PATRICK Y. IKEHARA
KAUTH, POMEROY, PECK & BAILEY LLP
2875 MICHELLE DRIVE, SUITE 110
IRVINE, CA 92606

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	23 JUL 2009
Applicant's or agent's file reference D1:01393.PCT	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 09/46588	08 June 2009 (08.06.2009)	06 June 2008 (06.06.2008)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06T 11/00 (2009.01)
USPC - 345/471

Applicant DIVX, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	14 July 2009 (14.07.2009)	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 09/46588

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

   [X] the international application in the language in which it was filed.

   [ ] a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of:

   a. type of material

      [ ] a sequence listing

      [ ] table(s) related to the sequence listing

   b. format of material

      [ ] on paper

      [ ] in electronic form

   c. time of filing/furnishing

      [ ] contained in the international application as filed

      [ ] filed together with the international application in electronic form

      [ ] furnished subsequently to this Authority for the purposes of search

4. [ ] In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 09/46588

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	11-24	YES
	Claims	1-10, 25-27	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-27	NO
Industrial applicability (IA)	Claims	1-27	YES
	Claims	None	NO

2. Citations and explanations:
Claims 1-10 and 25-27 lack novelty under PCT Article 33(2) as being anticipated by US 2006/0168639 A1 to Gan et al. (hereinafter 'Gan').

As to claim 1, Gan discloses a method of generating textual information for a multimedia file ('The partial font generator analyzes the text required for an application and produces a partial font file containing those characters needed by the application' see abstract, para [0006], para [0016]), the method comprising: receiving text data ('resource files 36'), an original font file ('complete character set of the language') and a multimedia file having audio and video data ('video/audio stream 32) by a processor (see FIG 2, abstract, para [0015]-[0016]); and generating an optimized font file from the text data and the original font file by the processor, the generated font file being specifically matched to the text data and different from the original font file ('partial font file', 'The partial font file consists of those characters necessary to support the instant application in one or more languages, and is less than the full set of characters for a given language', see abstract, para [0019]).

As to claim 2, Gan discloses a method wherein the text data includes a plurality of characters and the generated font file contains representations that only match the plurality of characters ('The partial font file consists of those characters necessary to support the instant application in one or more languages, and is less than the full set of characters for a given language', see abstract, para [0019]).

As to claim 3, Gan discloses a method wherein the text data additionally includes a plurality of predetermined characters and the generated font file contains representations that only match the plurality of the characters and the plurality of predetermined characters (see FIG. 6, abstract, para [0021]).

As to claim 4, Gan discloses a method wherein the generated font file is smaller in file size than the original font file ('The partial font file consists of those characters necessary to support the instant application in one or more languages, and is less than the full set of characters for a given language', see abstract, para [0019]).

As to claim 5, Gan discloses a method wherein generating the font file further comprises segmenting the original font file ('With this generator the service provider or application programmer can select the character set needed by a particular application, resulting in a relatively small character font file which can be quickly transmitted with reduced transmission time or bandwidth requirements' see para [0005]-[0006]).

As to claim 6, Gan discloses a method wherein the generated font file is not guaranteed to be useable for another multimedia file different from the received multimedia file ('The partial font generator analyzes the text required for an application and produces a partial font file containing those characters needed by the application. ....Repetitive transmission of small, custom-designed character font files reduce the overhead allocation of bandwidth and resultant slowdown of the interactive television broadcast' see abstract, para [0006]).

As to claim 7, Gan discloses a method wherein the generated font file is useable only for the received multimedia file ('('The partial font generator analyzes the text required for an application and produces a partial font file containing those characters needed by the application' see abstract, para [0006]).

As to claim 8, Gan discloses a method further comprising rendering textual information for display by using the text data and the generated font file ('The application processor 56 is configured to receiver the application program and process the strings of characters of the application program and render the characters for display on the television set 22' see para [0016]).

As to claim 9, Gan discloses a method further comprising incorporating the generated font file into the multimedia file ('The transportstream is generally processed by a set-top box which is specially designed to process and execute the applications interleaved with the video and audio data in the transportstream. The applications can provide the viewer with unique or auxiliary information about a broadcast such as program listings and real time textual commentary, or interactive applications such as the ability to shop for goods and services by means of the television set' see abstract, para [0002]).

As to claim 10, Gan discloses a method further comprising associating at least one track with the generated font file to the multimedia file ('This library of fonts is inserted as a character font object file in the carousel, then transmitted together with the application in the transportstream. Alternatively the library of fonts is embedded in the application for insertion into the carousel and subsequent transmission' see para [0019]).

--(Continued in Supplemental Box)--

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 09/46566

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box V, 2. Citations and explanations:

As to claim 25, Gan discloses a textual information rendering system for generating textual information for a multimédia file ('The partial font generator analyzes the text required for an application and produces a partial font file containing those characters needed by the application' see abstract, para [0006], para [0016]), the system comprising: a demultiplexer configured to extract text data from a multimedia file having audio and video data (see para [0016]); a processor configured to create a font file from the text data and an original font file, the generated font file being specifically matched to the extracted text data and at least one predetermined character (see abstract, para [0016]); and memory coupled to the processor and storing the generated font file ('store' see para [0019]-[0020]).

As to claim 26, Gan discloses a system further comprising: a video decoder module integrated with the processor and configured to decode the video data; an audio decoder module integrated with the processor and configured to decode the audio data; and a text rendering engine configured to decode the extracted text data and to display text information by utilizing the generated font file and the decoded text data (see abstract, para [0006], para [0014]).

As to claim 27, Gan discloses a system wherein the processor segments the original font file prior to storing the original font file('With this generator the service provider or application programmer can select the character set needed by a particular application, resulting in a relatively small character font file which can be quickly transmitted with reduced transmission time or bandwidth requirements' see para [0005]-[0006]).

Claims 11-24 lacks an inventive step under PCT Article 33(3) as being obvious over Gan in view of US 2008/0120330 A1 to Reed et al. (hereinafter 'Reed').

As to claim 11, Gan discloses a method further comprising associating the multimedia file with a textual element of the text data that is not a subtitle ('In an application of the present invention the application program includes textual information such as a menu, programming information, or text relating to a broadcast TV program, including strings of characters in one or more languages' see para [0016]) but does not specifically disclose at least one metadata tag. However, Reed discloses a metadata tag in para [0262]. It would have been obvious to one of ordinary skill in the art to add Reed's metadata tags to Gan's method of generating textual information for a multimedia file in order to improve the system by having time stamps that relate the Content with the text (see Reed - para [0262]).

As to claim 12, Gan discloses a method further comprising associating a hierarchy of tags with a plurality of textual element and a generated font file ('Every transmission from the carousel constitutes an entire file directory structure 92, including all of the data necessary to start using the content at a particular point in the broadcast', 'partial font file' see para [0018]-[0019]), but does not specifically disclose a hierarchy of tags. However, Reed discloses a a hierarchy of tags in para [0262]-[0263]. It would have been obvious to one of ordinary skill in the art to add Reed's hierarchy of tags to Gan's method of generating textual information for a multimedia file in order to improve the system by having time stamps that relate the Content with the text (see Reed - para [0262]).

As to claim 13, Gan discloses a method of generating textual information for a multimedia file ('The partial font generator analyzes the text required for an application and produces a partial font file containing those characters needed by the application' see abstract, para [0006], para [0016]), the method comprising: identifying a plurality of time segments of a multimedia file having audio and video data ('video/audio stream 32) by a processor (see FIG 2, abstract, para [0015]-[0016]), and generating a plurality of font files by the processor from text data ('resource files 36') and an original font file ('complete character set of the language'), each generated font file (('partial font file') being specifically matched to the text data for each identified time segment (see abstract, para [0019]) but does not specifically disclose time segments. Reed, discloses time segments ('time slices') in para [0137]-[0139], para [0262]. It would have been obvious to one of ordinary skill in the art to add Reed's time slices to Gan's method of generating textual information for a multimedia file in order to improve the system by having time stamps that relate the Content with the text (see Reed - para [0262]).

As to claim 14, Reed discloses a method further comprising associating a single font file with an identified time segment, spanning the entire duration of the movie ('the system will have time stamps that relate the Content with the text' see abstract, para [0262]-[0263]).

As to claim 15, Reed discloses a method further comprising associating each font file with each identified time segment ('the system will have time stamps that relate the Content with the text', 'content timeline 1400' see FIG.14A, abstract, para [0262]-[0263], para [0520]).

As to claim 16, Reed discloses a method further comprising marking each font file to signify a time period over which each font file is available for rendering the text data ('the system will have time stamps that relate the Content with the text' see abstract, para [0262]-[0263]).

As to claim 17, Reed discloses a method wherein the plurality of time segments collectively corresponds to an overall timeline of subtitle data ('content timeline 1400' see FIG.14A, para [0520]).

As to claim 18, Reed discloses a method further tracking the overall timeline and rendering subtitle information at specific time periods using only a font file of the plurality of font files that corresponds to the time segment associated with the tracked timeline (see FIG.14A, para [0520]).

As to claim 19, Gan discloses a method further comprising rendering textual information for display by using the text data and the plurality of font files ('The application processor 56 is configured to receiver the application program and process the strings of characters of the application program and render the characters for display on the television set 22' see para [0016]).

--(Continued in Supplemental Box)--

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 09/46588

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box V, 2. Citations and explanations:

As to claim 20, Gan discloses a method further comprising incorporating the generated font file into the multimedia file ('The transportstream is generally processed by a set-top box which is specially designed to process and execute the applications interleaved with the video and audio data in the transportstream. The applications can provide the viewer with unique or auxiliary information about a broadcast such as program listings and real time textual commentary, or interactive applications such as the ability to shop for goods and services by means of the television set' see abstract, para [0002]).

As to claim 21, Gan discloses a method wherein the text data includes a plurality of characters and the generated font file collectively contain representations that only match the plurality of characters ('The partial font file consists of those characters necessary to support the instant application in one or more languages, and is less than the full set of characters for a given language', see abstract, para [0019]).

As to claim 22, Gan discloses a method further comprising associating at least one track in the multimedia file with a generated font file ('This library of fonts is inserted as a character font object file in the carousel, then transmitted together with the application in the transportstream. Alternatively the library of fonts is embedded in the application for insertion into the carousel and subsequent transmission' see para [0019]).

As to claim 23, Gan discloses a method further comprising associating at least one track in the multimedia file with several font files simultaneously ('This library of fonts is inserted as a character font object file in the carousel, then transmitted together with the application in the transportstream. Alternatively the library of fonts is embedded in the application for insertion into the carousel and subsequent transmission' see para [0019]).

As to claim 24, Gan discloses a method further comprising associating the multimedia file with a textual element of the text data that is not a subtitle ('In an application of the present invention the application program includes textual information such as a menu, programming information, or text relating to a broadcast TV program, including strings of characters in one or more languages' see para [0016]) but does not specifically disclose at least one tag. However, Reed specifically discloses a tag in para [0262]. It would have been obvious to one of ordinary skill in the art to add Reed's tags to Gan's method of generating textual information for a multimedia file in order to improve the system by having time stamps that relate the Content with the text (see para [0262]).

Claims 1-27 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 53513P/D579	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US04/41667	International filing date (*day/month/year*) 08 December 2004 (08.12.2004)	(Earliest) Priority Date (*day/month/year*) 08 December 2003 (08.12.2003)
Applicant DIVXNETWORKS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**
   a. With regard to the **language**, the international search was carried out on the basis of:
      ☒ the international application in the language in which it was filed.
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. ☐ **Certain claims were found unsearchable** (See Box No. II)
3. ☐ **Unity of invention is lacking** (See Box No. III)
4. With regard to the **title**,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,
   ☐ the text is approved as submitted by the applicant.
   ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,
   a. the figure of the **drawings** to be published with the abstract is Figure No. 1
      ☒ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figures is to be published with the abstract.

DivX Exhibit 2005
Page 2005 - 321
IPR2020-00558

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/41667

Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

NEW ABSTRACT

A multimedia file and methods of generating, distributing and using the multimedia file are described. Multimedia files in accordance with embodiments of the present invention can contain multiple video tracks (62), multiple audio tracks (64, 66), multiple subtitle tracks (68, 70), data that can be used to generate a menu interface to access the contents of the file and "meta data" concerning the contents of the file. Multimedia files in accordance with several embodiments of the present invention also include references to video tracks (62), audio tracks (64, 66), subtitle tracks (68, 70) and "meta data" external to the file. One embodiment of a multimedia file in accordance with the present invention includes a plurality of encoded video tracks.

DivX Exhibit 2005
Page 2005 - 322
IPR2020-00558

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/41667

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **G06F 15/00**(2006.01)

USPC: 715/500.1,716,723
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 715/500.1,716,723

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
ACM, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	LONG et al., Silver: Simplifying Video Editing with Metadata, ACM 2003, pages 1-2.	1-168
X --- Y	JUAN CASARES et al., Simplifying Video Editing Using Metadat, all.	165, 168 --- 166-167, 169
X	US 2002/0161462 A (FAY et al.) 31 October 2002 (31.10.2002), figures 6-7, [0103]-[0107], [0130]-[0132].	1-26
X	US 2003/0123855 A (OKADA et al.) 03 July 2003 (03.07.2003), [0020], [0039], [0244], [0860], [0616], [0687], [0533].	27-53
X --- Y	US 2003/0005442 A (BRODERSEN et al.) 02 January 2003 (01.02.2003), [0058], [0061], [0066],	54-96 --- 165-169

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
24 May 2007 (24.05.2007)

Date of mailing of the international search report
20 JUN 2007

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (571) 273-3201

Authorized officer
Cong-Lac Huynh
Telephone No. 571-272-4125

DivX Exhibit 2005
Page 2005 - 323
IPR2020-00558

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US04/41667

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US04/41667

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 97-164	YES
	Claims 1-96,165-169	NO
Inventive step (IS)	Claims 97-164	YES
	Claims 1-96,165-169	NO
Industrial applicability (IA)	Claims 1-169	YES
	Claims NONE	NO

2. Citations and explanations:

Please See Continuation Sheet

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US04/41667

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 167 is objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof:
There are two claims 167. Therefore, the second claim 167 is misnumbered, which is a typographical error, and considered claim 169.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 59264P/D579	**FOR FURTHER ACTION** see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US07/63950	International filing date (*day/month/year*) 14 March 2007 (14.03.2007)	(Earliest) Priority Date (*day/month/year*) 14 March 2006 (14.03.2006)
Applicant DIVX, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**
   a. With regard to the **language**, the international search was carried out on the basis of:
      ☒ the international application in the language in which it was filed.
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 Rule 43.6 *bis(a)*
   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. ☐ **Certain claims were found unsearchable** (See Box No. II)
3. ☐ **Unity of invention is lacking** (See Box No. III)
4. With regard to the **title**,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,
   ☐ the text is approved as submitted by the applicant.
   ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,
   a. the figure of the **drawings** to be published with the abstract is Figure No. 1
      ☒ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (April 2007)

Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

NEW ABSTRACT

Federated systems for issuing playback certifications granting access to technically protected content are described. One embodiment of the system includes a registration server 26 connected to a network 14, a content server 12 connected to the network 14 and to a trusted system 24, a first device including a non-volatile memory that is connected to thenetwork and a second device inlcuding a non-volatile memory that is conected to the network 12. In addition, the registration server 26 is configured to provide the first device with a first set of activation information in a first format, the first device is configured to store the first set of activation information in non-voatile memory, the registration server 26 is configured to provide the second device is configured to store the second set of activation information in non-volatile memory.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US07/63950

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **H04L 9/00**(2006.01)

USPC: 380/200,201;713/156;705/57,59
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 380/200,201;713/156;705/57,59

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0071200 (IRWIN et al.) 31 March 2005 (31.03.05), Entire Document.	1-29
Y	US 2006/0036549 (WU) 16 March 2006 (16.02.2006), Entire Document, especially [0092].	1-29

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
19 February 2008 (19.02.2008)

Date of mailing of the international search report
19 MAR 2008

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (571) 273-3201

Authorized officer
/Tongoc Tran/

Telephone No. (571)272-3843

Form PCT/ISA/210 (second sheet) (April 2007)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
DAVID J. BAILEY
CHRISTIE, PARKER & HALE, LLP
P.O. BOX 7068
PASADENA, CA 91109

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	19 MAR 2008
Applicant's or agent's file reference 59264P/D579	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US07/63950	14 March 2007 (14.03.2007)	14 March 2006 (14.03.2006)

International Patent Classification (IPC) or both national classification and IPC

IPC: **H04L 9/32**(2006.01);**H04L 9/14**(2006.01)
USPC: 713/156;380/45;726/6

Applicant

DIVX, INC.

1. This opinion contains indications relating to the following items:

- [X] Box No. I — Basis of the opinion
- [ ] Box No. II — Priority
- [ ] Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV — Lack of unity of invention
- [X] Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI — Certain documents cited
- [ ] Box No. VII — Certain defects in the international application
- [ ] Box No. VIII — Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(*b*) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	01 March 2008 (01.03.2008)	/Tongoc Tran/ Telephone No. (571)272-3843

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US07/63950

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US07/63950

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	NONE	YES
	Claims	1-29	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-29	NO
Industrial applicability (IA)	Claims	1-29	YES
	Claims	NONE	NO

2. Citations and explanations:

Please See Continuation Sheet

DivX Exhibit 2005
Page 2005 - 332
IPR2020-00558

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US07/63950

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims NONE	YES
	Claims 1-29	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-29	NO
Industrial applicability (IA)	Claims 1-29	YES
	Claims NONE	NO

2. Citations and explanations:

Please See Continuation Sheet

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:

Claims 1-29 lack inventive step under PCT Article 33(3) as being obvious over Irwin et al. (U.S. Patent Application Publication No. 2005/007280 A1, hereinafter Irwin) in view of Wu (U.S. Patent Application Publication No. 2006/0036549).

Claims 1-3, 11, 13, 15-19 and 21-27 lack an inventive step under PCT Article 33(3) as being obvious over Irwin (U.S. Patent Application Publication No. 2005/007280 A1)
With respect to claim 1, Irwin discloses a content distributed network, a registration server, a content server, a device, a registration process and a process for issuing playback certifications, comprising:
A registration server connected to a network (e.g. Fig. 1, License Server, [0032], [0089], register client, establish communication link, [0177], package rights documents with decryption keys, process encryption key [0032] ;
A content server connected to the network and to a trusted system (e.g. repository of content [0085], client device interaction, process client request [0085], implementing encryption technology [0100], [0135];
A first device including a non-volatile memory that is connected to the network (e.g. Fig. 1, client device);
A second device including a non-volatile memory that is connected to the network; and
Wherein the registration server is configured to provide the first device with a first set of activation information in a first format (e.g. Fig. 1, license service and client device);
Wherein the registration server is configured to store the first set of activation information in non-volatile memory.
Wherein the registration server is configured to provide the second device with a second set of activation information in a second format; and
Wherein the second device is configured to store the second set of activation information in non-volatile memory (e.g. Fig. 1, DRM controller,license store, unique PKI certificate [0144].
Irwin does not explicitly disclose the content server provide playback certifications containing at least one encrypted copy of the encryption keys used to encrypt the stored content and transmit the certication via the network interface. However, Irwin discloses encrypted content and encryption information is communicated with the client device (e.g. rights documents are packaged with appropriate decryption key [0032]). Furthermore, Wu discloses a content key is encrypted with specific device key (e.g. Wu, [0092]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the playback certificate containing encrypted keys provided by the content server with Wu's teaching of encrypting content key with device key to ensure the integrity of the content key used to decrypt the content.

International application No.
PCT/US07/63950

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

With respect to claims 4 and 8, Irwin and Wu disclose the content distribution network of claim 2, wherein:
The first set of activation information is protected by a base encryption key and includes a user encryption key;
the playback certification includes information encrypted using the user encryption key (Wu, e.g. [0092]). Furthermore, encryption key generated with random number is common in encryption schemes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teaching Irwin and Wu's utilization of content protection with base key and user key (or device key) with random number to improve the security of the digital content.

With respect to claim 5, Irwin and Wu disclose the content distribution system of claim 4, wherein the information encrypted using the base encryption key and the user encryption key enables playback of the technically protected content (Wu, e.g. [0092]).

With respect to claim 6, Irwin and Wu discloses the content distribution system of claim 4, wherein:
Wherein the second set of activation information includes the same base encryption key and a different user encryption key (Wu, e.g. [0092]).

With respect to claim 7, Irwin and Wu disclose the content distribution system of claim 4, wherein the second set of activation information includes a different base encryption key and a different user encryption key (Wu, e.g. [0092]).

With respect to claim 9, Irwin and Wu discloses the distribution system of claim 4, wherein:
The registration server is configure to revoke the user encryption key (Irwin, e.g. [0137]).

With respect to claim 10, Irwin and Wu discloses the content distribution system of claim 4, wherein the registration server is configure to revoke the user encryption key (Irwin, e.g. [0137]).

With respect to claim 12, Irwin and Wu disclose the registration server of claim 11, wherein the activation information includes a base encryption key and a user encryption key (Wu, e.g. [0092]).

With respect to claim 14, Irwin and Wu disclose the registration server of claim 11, wherein:
The processor is configured to generate multiple base encryption keys and multiple user encryption keys;
The activation information includes the multiple base encryption keys and a single user encryption key and information concerning an active base encryption key; The processor is configured to store the multiple base encryption keys and the multiple user encryption keys in the storage device; and the processor is configured to store information indicative of the active base encryption key and the user encryption key included in the activation information in the storage device (Wu, e.g. [0092]).

With respect to claim 20, Irwin and Wu disclose the device of claim 19, wherein the activation information includes a base encryption key and a user encryption key (Wu, e.g. [0092]).

With respect to claim 28, a process for issuing playback certifications, comprising:
Receiving a content key from content provider; Receiving playback parameters from a content provider;
Locating a user key and a base key associated with a device; Encrypting the playback parameters using the base key; Encrypting the content key using the user key; and Providing a playback certification including the encrypted playback parameters and the encrypted content key (Wu, e.g. [0092]).

With respect to claim 29, the process of claim 28, further comprising:
Locating multiple user keys and multiple base keys associated with a device; forming a playback parameters table, where each entry in the table includes the playback parameters encrypted using a different base key; forming a content key table, where each entry in the table includes a copy of the content key encrypted usig a different user key (Wu, e.g. [0092]).

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

RECEIVED
JAN 26 2009
By

Applicant's or agent's file reference D1:01167.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 08/83816	International filing date *(day/month/year)* 17 November 2008 (17.11.2008)	(Earliest) Priority Date *(day/month/year)* 16 November 2007 (16.11.2007)
Applicant DIVX, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

CASE # D1:01167PCT ACTION _____

REMINDER _____ DUE DATE _____

DEADLINE _____

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/83818

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 15/16 (2009.01)
USPC - 709/203
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC - 709/203

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 709/201-202; 380/200,255

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
USPTO WEST (PGPB, USPT, EPAB, JPAB); GOOGLE
multimedia, content, cue data, index, reduced index, hierarchical index, hierarchical, play, trick play, playback

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/0235880 A1 (Qian) 19 October 2006 (19.10.2006), entire document, especially: Figs. 3, 4, 9; para [0017], [0019], [0020]-[0022], [0024], [0027], [0029], [0032], [0037], [0042], [0044]-[0046], [0051], [0053], [0054]	1-23

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 January 2009 (10.01.2009)	22 JAN 2009
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: KAUTH, POMEROY, PECK & BAILEY LLP
P.O. BOX 19152
IRVINE, CA 92623

JAN 26 2009

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	22 JAN 2009
Applicant's or agent's file reference D1:01167.PCT	FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/US 08/83816	International filing date *(day/month/year)* 17 November 2008 (17.11.2008)
	Priority date *(day/month/year)* 16 November 2007 (16.11.2007)
International Patent Classification (IPC) or both national classification and IPC IPC(8) - G06F 15/16 (2009.01) USPC - 709/203	
Applicant DIVX, INC.	

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [X] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Date of completion of this opinion 10 January 2009 (10.01.2009)	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (April 2007)

CASE # 01:01167.PCT ACTION _____
REMINDER _____ DUE DATE _____
DEADLINE _____

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/83816

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed

☐ filed together with the international application in electronic form

☐ furnished subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/83816

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	None	YES
	Claims	1-23	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-23	NO
Industrial applicability (IA)	Claims	1-23	YES
	Claims	None	NO

2. Citations and explanations.
Claims 1-23 lack novelty under PCT Article 33(2) as being anticipated by US 2006/0235880 A1 to Qian.

As per claim 1, Qian teaches a method of playing back content by a playback device stored in a media file, the method comprising: providing a media file to a playback device (para [0019]), the media file having content data (para [0020]), cue data (para [0020]) and a hierarchical index (para [0017], [0022]), the content data having a plurality of media frames (para [0020]), the cue data being associated with each frame of the plurality of frames and the hierarchical index being associated with a subset of the cue data (timestamp / offset . para [0037]); decoding the content data by a playback device (para [0019]); displaying content on a display screen from the decoded content data (para [0053]); receiving a user request (para [0053]); locating the index based on the user request (para [0044]); and decoding one or more media frames from the subset of the cue data based on the located index (para [0044]).

As per claim 2, Qian teaches the method of claim 1 wherein the index has reference values that point directly to particular media frames of the plurality of media frames (para [0037]).

As per claim 3, Qian teaches the method of claim 1 wherein the hierarchical index includes pointers to the cue data within the media file and further comprising accessing the cue data through the pointers to locate a frame to be decoded (para [0021], [0024]).

As per claim 4, Qian teaches the method of claim 1 wherein the hierarchical index is associated with a subset of the plurality of media frames through a second hierarchical index and further comprising locating a subset of the second hierarchical index based on the hierarchical index relative to the user request (Fig. 4, para [0032]).

As per claim 5, Qian teaches the method of claim 4 wherein decoding one or more media frames from the subset of the plurality of media frames is based on the located subset of the second hierarchical index (Fig. 4, para [0032]).

As per claim 6, Qian teaches the method of claim 1 wherein the media file has an upper hierarchical index associated with the hierarchical index and the hierarchical index associated with one or more media frames from the subset of the plurality of media frames and wherein the upper hierarchical index has a greater number of associations with one or more media frames than the hierarchical index (para [0029], [0032], [0042]).

As per claim 7, Qian teaches a method of encoding a media file for playing back by a playback device, comprising: incorporating seek locations with content data (para [0037]), the content data having audio, video and subtitle tracks, the seek locations identifying particular timestamps for particular frames within the audio, video or subtitle tracks; incorporating an index referencing the incorporated seek locations (para [0037]); and creating a media file having the content data, the incorporated seek locations, and the incorporated index (Fig. 3, para [0027]).

As per claim 8, Qian teaches the method of claim 7 wherein incorporating the index further comprises interleaving an index between audio and video tracks (para [0024]).

As per claim 9, Qian teaches the method of claim 8 wherein the index points only to key frames within the audio, video or subtitle tracks (para [0037]).

As per claim 10, Qian teaches the method of claim 9 wherein the index contains locations and timestamps to key frames (para [0037]).

As per claim 11, Qian teaches a system for playback of a media file, comprising: a media server configured to transmit a media file having at least one index having pointers that reference at least one frame of media content within the media file (para [0046]); and a client processor in network communication with the media server and configured to send requests for the media file to the media server (Fig. 9, para [0054]), the media server configured to transmit the media file requested (para [0046]), the client processor comprises a playback engine configured to locate a pointer from the at least one index to locate and decode the portions of the media file based on the located pointer to comply with user playback instructions (Fig. 9, para [0054]).

(See Supplemental Box)

DivX Exhibit 2005
Page 2005 - 340
IPR2020-00558

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/83816

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
Claim 23 refers to Claim 19, but also mentions a "located cluster." Only claim 22 mentions the element of locating a cluster, so it appears that Claim 23 should instead refer to Claim 22.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/83816

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
V. 2. Citations and Explanations

As per claim 12, Qian teaches the system of claim 11 wherein the at least one index contains pointers to key frames only (para [0037]).

As per claim 13, Qian teaches the system of claim 11 wherein the at least one index contains pointers to another index that contains pointers that reference at least one frame of media content within the media file (para [0021], [0024]).

As per claim 14, Qian teaches the system of claim 11 wherein the at least one index comprises a plurality of pointers, each pointer referencing a frame of media content and the plurality of pointers in its entirety referencing each frame of media content (para [0037]).

As per claim 15, Qian teaches the system of claim 11 wherein the at least one index comprises a coarse index having pointers referencing frames of media content and a fine index having pointers referencing frame of the media content, the fine index having more pointers than the coarse index (para [0032]).

As per claim 16, Qian teaches the system of claim 11 wherein the at least one index comprises a reduced index having pointers only to access frames of the media content (para [0042]).

As per claim 17, Qian teaches a method of decoding a multimedia file having an index included with the multimedia file, the method comprising: locating an index within a multimedia file (para [0019]), the index having a plurality of index data-points and the multimedia file having a plurality of frames (para [0020]) and a plurality of cue data-points having a time stamp (para [0037]) and a location of a specific frame of the plurality of frames (para [0037]); loading the located index into storage (para [0051]); locating an index data-point from the plurality of index data-points based on a timestamp (para [0044], [0045]); and locating a cue data-point from the plurality of cue-data points based on the located index data-point (para [0019]).

As per claim 18, Qian teaches the method of claim 17 further comprising displaying a video frame on a display screen, the displayed video frame being a frame that corresponds to a frame referenced in the located cue data-point (Fig. 9; para [0046], [0053]).

As per claim 19, Qian teaches the method of claim 18 further comprising playing audio through a speaker system in a synchronized manner relative to the displayed frame and the played audio being based on audio information that corresponds to a beginning of audio data for the displayed frame (para [0017], [0019], [0020]).

As per claim 20, Qian teaches the method of claim 18 further comprising displaying subtitles in a synchronized manner relative to the displayed frame and the displayed subtitles being based on subtitle information that corresponds to subtitle data for the displayed frame (para [0019]).

As per claim 21, Qian teaches the method of claim 18 further comprising displaying metadata information relative to the displayed frame and the displayed metadata information being based on metadata information that corresponds to metadata for the displayed frame (para [0029], [0032], [0044]).

As per claim 22, Qian teaches the method of claim 17 further comprising locating a cluster referenced by the located cue data-point ('cluster' - localized TOC indexes, para [0021]).

As per claim 23, Qian teaches the method of claim 19 further comprising locating a block within the located cluster and referenced by the located cue data-point (para [0021]).

Claims 1-23 have industrial applicability as defined by PCT article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference D1.01940.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 10/56733	International filing date *(day/month/year)* 15 November 2010 (15.11.2010)	(Earliest) Priority Date *(day/month/year)* 04 December 2009 (04.12.2009)
Applicant DIVX, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the language, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the title,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

   a. the figure of the drawings to be published with the abstract is Figure No. 2

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 10/56733

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04N 7/167 (2010.01)
USPC - 380/217
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC - 380/217

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 380/210; 380/239; 705/51 (keyword limited; terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Dialog; Google
Transmit, sent, deliver, transport, distrib, media, multimedia, video, content, encrypt, decrypt, crypt, encipher, decipher, scramble, process, algorithm, data, stream, bitstream, container, wrapper, file, digital, rights, management, DRM, header, user, metadata, data, heu

C DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2004/0081333 A1 (GRAB et al.) 29 April 2004 (29.04.2004), Para [0033], [0037]-[0042], [0047]-[0048], [0050], [0052], [0055]-[0056]	1-9 and 13-21 --- 10-12 and 22-25
Y	US 2003/0035548 A1 (JIANG et al.) 20 February 2003 (20.02.2003), Para [0021]	10-12 and 22-25
A	US 2003/0035545 A1 (JIANG) 20 February 2003 (20.02.2003)	10, 22, 25
A	US 2004/0105549 A1 (SUZUKI et al.) 03 June 2004 (03.06.2004)	1-25
A	US 2007/0255940 A1 (UENO) 01 November 2007 (01.11.2007)	1-25
A	US 2009/0097644 A1 (HARUKI) 16 April 2009 (16.04.2009)	1-25

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
03 January 2011 (03.01.2011)	14 JAN 2011
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID J. BAILEY
KAUTH, POMEROY, PECK & BAILEY LLP
2875 MICHELLE DRIVE, SUITE 110
IRVINE, CA 92606

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)* 14 JAN 2011

Applicant's or agent's file reference	FOR FURTHER ACTION
D1:01940.PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 10/56733	15 November 2010 (15.11.2010)	04 December 2009 (04.12.2009)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04N 7/167 (2010.01)
USPC - 380/217

Applicant DIVX, LLC

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	03 January 2011 (03.01.2011)	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2009)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/56733

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/56733

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	10-12 and 22-25	YES
	Claims	1-9 and 13-21	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-25	NO
Industrial applicability (IA)	Claims	1-25	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-9 and 13-21 lack novelty under PCT Article 33(2) as being anticipated by US 2004/0081333 A1 to Grab et al. (hereinafter 'Grab').

As per claim 1, Grab discloses a method of playing back encrypted video on a playback device, where at least partially encrypted video data (Para [0033] -- selected portions of a stream) is contained within a container file (Para [0033] -- header data; Para [0040] -- tagged, synchronized frame decryption stream) and can be used to create an elementary bitstream using cryptographic information (Para [0033] -- encrypted material), which can be used to decrypt the at least partially encrypted video data (Para [0040]), the method comprising: obtaining the cryptographic information (Para [0040] -- encryption key); extracting the at least partially encrypted video data from the container file to create an elementary bitstream (Para [0038] -- marked frames; Para [0042]); enciphering the cryptographic information (Para [0047]); inserting the cryptographic information in the elementary bitstream (Para [0042], [0047]); providing the elementary bitstream to a video decoder (Para [0048]); extracting the cryptographic information from the elementary bitstream at the video decoder (Para [0048] -- parsing frames); deciphering the cryptographic information (Para [0048] -- decryption routine); decrypting the elementary bitstream with the cryptographic information (Para [0048] -- decrypting with appropriate decryption key); and decoding the elementary bitstream for rendering on a display device using the video decoder (Para [0048], [0052]).

As per claim 13, Grab further discloses a system for playback of encrypted video, where at least partially encrypted video data (Para [0033] -- selected portions of a stream) is contained within a container file (Para [0033] -- header data; Para [0040] -- tagged, synchronized frame decryption stream) and can be used to create an elementary bitstream using cryptographic information (Para [0033] -- encrypted material), which can be used to decrypt the at least partially encrypted video data (Para [0040]), comprising: a demultiplexer configured to extract the at least partially encrypted video data from the container file to create an elementary bitstream (Para [0038] -- marked frames; Para [0042]); and a video decoder configured to decrypt the elementary bitstream using the cryptographic information (Para [0048] -- decrypting with appropriate decryption key) and decode the elementary bitstream for rendering on a display device (Para [0048], [0052]); wherein the demultiplexer is configured to encipher the cryptographic information (Para [0047]) and insert the enciphered cryptographic information in the elementary bitstream (Para [0042], [0047]); and wherein the decoder is configured to extract enciphered cryptographic information from an elementary bitstream (Para [0048] -- parsing frames) and to decipher the cryptographic information (Para [0048] -- decryption routine).

As per claims 2 and 14, Grab further discloses wherein the cryptographic information is obtained from the container file (Para [0040] -- encryption key from synchronized frame decryption stream).

As per claims 3 and 15, Grab further discloses wherein the cryptographic information comprises: key information (Para [0040]); and information concerning at least a portion of the at least partially encrypted video data that is encrypted using the key information (Para [0038], [0040] -- encryption on/off status).

As per claims 4 and 16, Grab further discloses wherein the information concerning at least a portion of the at least partially encrypted video data is a reference to a block of encrypted data within an encoded frame of video that is encrypted using the key information (Para [0040] -- size of data field).

As per claims 5 and 17, Grab further discloses wherein the cryptographic information inserted in the elementary bitstream is delimited by an identifier (Para [0040] -- encryption on/off status); and the cryptographic information is inserted before the at least partially encrypted video data encrypted using the key information (Para [0050] -- frame decryption information).

As per claims 6 and 18, Grab further discloses wherein the cryptographic information is extracted using the identifier (Para [0048] -- parsing frames).

As per claims 7 and 19, Grab further discloses wherein the decrypting process is performed by using the key information to identify the encrypted portion of video data and decrypting the encrypted video data using the key information (Para [0048]).

As per claims 8 and 20, Grab further discloses wherein cryptographic information inserted in different locations within the elementary bitstream includes different key information (Para [0041] -- new key for new partially encrypted video data).

As per claims 9 and 21, Grab further discloses wherein the at least partially encrypted video data comprises: frames of encoded video (Para [0039]); wherein at least a portion of a plurality of the encoded frames is encrypted (Para [0039]).

-- Please See Supplemental Sheet --

DivX Exhibit 2005
Page 2005 - 347
IPR2020-00558

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box V.2 Citations and Explanations

Claims 10-12 and 22-25 lack an inventive step under PCT Article 33(3) as being obvious over Grab in view of US 2003/0035546 A1 to Jiang et al. (hereinafter 'Jiang').

As per claims 10 and 22, Grab does not disclose wherein the enciphering process and the deciphering process are synchronized such that a delay in excess of a predetermined time between enciphering and deciphering results in the cryptographic information being unrecoverable. However, Jiang does disclose wherein the enciphering process and the deciphering process are synchronized such that a delay in excess of a predetermined time between enciphering and deciphering results in the cryptographic information being unrecoverable (Para [0021]). It would have been obvious to one of ordinary skill in the art to have modified Grab so as to include synchronized processes, as taught by Jiang, since such would help protect the encrypted bitstream by recognizing if any additional processes were being performed on the bitstream, thereby extending the delay above the predetermined time, and stopping access to the deciphering process.

As per claims 11 and 23, Grab does disclose wherein the enciphering process enciphers data by using a sequence of scrambling processes to scramble data (Para [0033], [0037], [0055] -- signal processing techniques).

As per claims 12 and 24, Grab does disclose wherein the deciphering process deciphers data by performing the inverse sequence of scrambling processes to the sequence used to scramble the data (Para [0056]).

As per claim 25, Grab further discloses method of playing back encrypted video on a playback device, where at least partially encrypted video data (Para [0033] -- selected portions of a stream) is contained within a container file (Para [0033] -- header data; Para [0040] -- tagged, synchronized frame decryption stream) and can be used to create an elementary bitstream using cryptographic information (Para [0033] -- encrypted material), which can be used to decrypt the at least partially encrypted video data (Para [0040]), the method comprising: obtaining the cryptographic information (Para [0040] -- encryption key), wherein the cryptographic information is obtained from the container file (Para [0040] -- encryption key from synchronized frame decryption stream); wherein the at least partially encrypted video data comprises: frames of encoded video (Para [0039]); and wherein at least a portion of a plurality of the encoded frames is encrypted (Para [0039]); wherein the cryptographic information comprises: key information (Para [0040]); and information concerning at least a portion of the least partially encrypted video data that is encrypted using the key information (Para [0038], [0040] -- encryption on/off status); wherein the information concerning at least a portion of the at least partially encrypted video data is a reference to a block of encrypted data within an encoded frame of video that is encrypted using the key information (Para [0040] -- size of data field); and wherein cryptographic information inserted in different locations within the elementary bitstream includes different key information (Para [0041] -- new key for new partially encrypted video data); extracting the at least partially encrypted video data from the container file to create an elementary bitstream (Para [0038] -- marked frames; Para [0042]), wherein the cryptographic information inserted in the elementary bitstream is delimited by an identifier (Para [0040] -- encryption on/off status); and wherein the cryptographic information is inserted before the at least partially encrypted video data encrypted using the key information (Para [0050] -- frame decryption information); enciphering the cryptographic information (Para [0047]); inserting the cryptographic information in the elementary bitstream (Para [0042], [0047]), wherein the cryptographic information is extracted using the identifier (Para [0048] -- parsing frames); providing the elementary bitstream to a video decoder (Para [0048]); extracting the cryptographic information from the elementary bitstream at the video decoder (Para [0048] -- parsing frames); deciphering the cryptographic information (Para [0048] -- decryption routine), wherein the enciphering process enciphers data by using a sequence of scrambling processes to scramble data (Para [0033], [0037], [0055] -- signal processing techniques); and wherein the deciphering process deciphers data by performing the inverse sequence of scrambling processes in the sequence used to unscramble data (Para [0056]); decrypting the elementary bitstream with the cryptographic information (Para [0048] -- decrypting with appropriate decryption key), wherein the decrypting process is performed by using the key information to identify the encrypted portion of video data and decrypting the encrypted video data using the key information (Para [0048]); and decoding the elementary bitstream for rendering on a display device using the video decoder (Para [0048], [0052]). Grab does not disclose wherein the enciphering process and the deciphering process are synchronized such that a delay in excess of a predetermined time between enciphering and deciphering results in the cryptographic information being unrecoverable. However, Jiang does disclose wherein the enciphering process and the deciphering process are synchronized such that a delay in excess of a predetermined time between enciphering and deciphering results in the cryptographic information being unrecoverable (Para [0021]). It would have been obvious to one of ordinary skill in the art to have modified the method of Grab so as to include synchronized processes, as taught by Jiang, since such would help protect the encrypted bitstream by recognizing if any additional processes were being performed on the bitstream, thereby extending the delay above the predetermined time, and stopping access to the deciphering process.

Claims 1-25 have industrial applicability as defined by PCT Article 33(4), because the subject matter can be made or used in industry.

SEARCH HISTORY

Application Number	PCT/US 10/56733
Search Conducted By	ANK
Search Approved By	PJN

US/IPC Classifications Searched	USPC - 380/217
Date Conducted	03 January 2011 (03.01.2011)

Documentation Searched	USPC - 380/210; 380/239; 705/51 (keyword limited; terms below)
Search Terms Used	Transmit, sent, deliver, transport, distrib, media, multimedia, video, content, encrypt, decrypt, crypt, encipher, decipher, scramble, process, algorithm, data, stream, bitstream, container, wrapper, file, digital, rights, management, DRM, header, user, metadata, data, heuristic, rule, playing, back, delay
Date Conducted	03 January 2011 (03.01.2011)

Electronic Database Searched	Dialog
Files Searched	2 - INSPEC; 6 - NTIS (National Technical Information Service); 63 - Transportation Research Information Services (TRIS); 65 - Inside Conferences; 118 - ICONDA - International Construction Database; 144 - PASCAL; 440 - Current Contents Search; 344 - Chinese Patent Abstracts in English; 348 - European Patents Fulltext; 349 - WIPO/PCT Patents Fulltext; 371 - French Patents; 652 - US Patents Fulltext (1971 – 1975); 654 - US Patents Fulltext (1976 – present)
Date Conducted	03 January 2011 (03.01.2011)

Search Logic:

```
S1      203  CL=380-217
S2     3208  CL=(380-210 OR 380-239 OR 705-51)
S3     3357  S1 OR S2
S4     1998  S3 AND (TRANSMIT? OR SEND??? OR DELIVER? OR TRANSPORT? OR
                 DISTRIB?)(N5)(MEDIA OR MULTIMEDIA OR VIDEO OR CONTENT)
```

SEARCH HISTORY

S5	1693	S4 AND (ENCRYPT? OR DECRYPT? OR CRYPT?)
S6	84	S5 AND (ENCIPHER? OR DECIPHER? OR SCRAMBLE)(N3)(PROCESS? OR ALGORITHM)
S7	24	S6 AND (MEDIA OR MULTIMEDIA OR VIDEO)(N5)(DATA(N3)STREAM OR BITSTREAM)
S8	32	S5 AND (CONTAINER OR WRAPPER)(N3)FILE
S9	325	S5 AND (DIGITAL(N3)RIGHTS(N3)MANAGEMENT OR DRM)
S10	158	S9 AND (HEADER OR USER OR METADATA)(N3)DATA
S11	44	S10 AND (HEURISTIC OR RULE)
S12	482686	(TRANSMIT? OR SEND??? OR DELIVER? OR TRANSPORT? OR DISTRIB?)(N5)(MEDIA OR MULTIMEDIA OR VIDEO OR CONTENT)
S13	40351	(MEDIA OR MULTIMEDIA OR VIDEO)(N5)(DATA(N3)STREAM OR BITSTREAM)
S14	5808	(ENCIPHER? OR DECIPHER? OR SCRAMBLE)(N3)(PROCESS? OR ALGORITHM)
S15	1777	S14 AND (TRANSMIT? OR SEND??? OR DELIVER? OR TRANSPORT? OR DISTRIB?)(N5)(MEDIA OR MULTIMEDIA OR VIDEO OR CONTENT)
S16	1145	S15 AND (ENCRYPT? OR DECRYPT? OR CRYPT?)
S17	225	S16 AND (MEDIA OR MULTIMEDIA OR VIDEO)(N5)(DATA(N3)STREAM OR BITSTREAM)
S18	218	S17 AND (ENCOD? OR DECOD?)
S19	14	S18 AND (DIGITAL(N3)RIGHTS(N3)MANAGEMENT OR DRM)

Electronic Database Searched	Google
Files Searched	Google Patents
Date Conducted	03 January 2011 (03.01.2011)

Search Logic:

Patents 401 - 464 on playing back encrypted video
Patents 1 - 74 on playing back encrypted video deciphering synchronized
Patents 1 - 13 on enciphering sync delay
Patents 101 - 174 on encrypted video enciphering
Patents 1 - 84 on encrypting video DRM container

Electronic Database Searched	Google
Files Searched	Google Scholar
Date Conducted	03 January 2011 (03.01.2011)

Search Logic:

playing back encrypted video
Results 1 - 10 of about 35,800

SEARCH HISTORY

playing back encrypted video deciphering synchronized
Results 1 - 10 of about 6,340
enciphering sync delay
Results 1 - 10 of about 154
encrypted video enciphering
Results 1 - 10 of about 1,410
encrypting video DRM container
Results 1 - 10 of about 954

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 02540 PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2013/043181	International filing date *(day/month/year)* 29 May 2013	(Earliest) Priority Date *(day/month/year)* 28 June 2012
Applicant DIVX, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 9 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II).

3. ☐ Unity of invention is lacking (see Box No. III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/043181

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04N 5/783 (2013.01)
USPC - 386/343
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - G06F 21/00; H04L 9/00; H04N 5/00; 5/783 (2013.01)
USPC - 386/343; 241; 705/219; 725/105; 38

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC - G06F 21/00; H04L 9/00; H04N 5/00; 5/783 (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Google, Orbit, Google Patents

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	EP 1 058 273 A2 (CORNELIO et al) 29 November 2000 (29.11.2000) entire document	1-20
Y	US 6,038,257 A (BRUSEWITZ et al) 14 March 2000 (14.03.2000) entire document	1-20
Y	US 2011/0191803 A1 (BALDWIN et al) 04 August 2011 (04.08.2011) entire document	3, 5, 10, 17, 18
Y	US 2009/0138216 A1 (SOROUSHIAN et al) 28 May 2009 (28.05.2009) entire document	8
Y	WO 2011/103384 A1 (THORWIRTH) 25 August 2011 (25.08.2011) entire document	8, 12, 15

☐ Further documents are listed in the continuation of Box C ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 November 2013	06 DEC 2013
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID J. BAILEY
KAUTH, POMEROY, PECK & BAILEY, LLP
2400 E. KATELLA, SUITE 1050
ANAHEIM, CA 92806

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*: 06 DEC 2013

Applicant's or agent's file reference: 02549.PCT

FOR FURTHER ACTION: See paragraph 2 below

International application No	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2013/043181	29 May 2013	28 June 2012

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04N 5/783 (2013.01)
USPC - 386/343

Applicant: DIVX, LLC

1. This opinion contains indications relating to the following items:

- [X] Box No. I — Basis of the opinion
- [ ] Box No. II — Priority
- [ ] Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV — Lack of unity of invention
- [X] Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI — Certain documents cited
- [ ] Box No. VII — Certain defects in the international application
- [ ] Box No. VIII — Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	27 November 2013	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

a. (means)

☐ on paper

☐ in electronic form

b. (time)

☐ in the international application as filed

☐ together with the international application in electronic form

☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2013/043181

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-20	YES
	Claims	None	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations:

See Supplemental Box

DivX Exhibit 2005
Page 2005 - 356
IPR2020-00558

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 1, 2, 4, 6, 7, 11, 13, 14, 16, 19, 20, lack an inventive step under PCT Article 33(3) as being obvious over Cornelio et al , hereinafter referred to as Cornelio in view of Brusewitz et al., hereinafter referred to as Brusewitz.

Regarding claims 1, 19, 20, Cornelio discloses a method for fast startup of video playback of encoded media using at least two video streams, where the media is encoded as at least a first video stream and a second video stream, the method comprising [claims 1, 19] (a method which includes a video encoder 106 that dynamically adjusts the compression ratio, para 0028; by selecting the play button, a play request is sent and in response to the play request the video encoder 106 decodes the video stream and initiates the playing of the video at a current selected high quality image [startup of video playback], para 0082; the server 132 consists of video files 134 and 140, wherein the images of the video file 140 have a higher resolution higher quality than compared to video file 134, and when switching the input file at the client 110 the video transmitter 136 begins transmission from the video file 140 [second video stream] at a frame that corresponds to the last frame sent from video file 134 [first video stream], and the switching does cause a skip in the video as it is viewed at the client [interpreted as fast startup of video playback], para 0033, 0036, 0037), a network interface; memory; and a processor, wherein the processor is configured by a playback application to [claim 19] (a processor 122 executes sequences of instructions contained in the dynamic memory of client 110, to decode a video stream and transmit to the display 112 for playback, para 0022, 0023, 0025) a machine readable medium containing processor instructions, where execution of the instructions by a processor causes the processor to perform a process [claim 20] (a processor 122 executes sequences of instructions contained in the dynamic memory of client 110, to decode a video stream and transmit to the display 112 for playback, para 0022, 0023, 0025) comprising:
identifying a location within the first video stream at which to commence playback using a playback device (the user provides an input to switch between transmission rates of a video, upon which the video transmitter 136 begins transmission from the video file 140 at a frame that corresponds to the last frame sent [identifying a location] from video file 134 [first video stream], para 0036, 0037, a user selects a pause button to pause the playback of a video, and upon which the processor 122 transmits a message to the server 132, the message includes data that identifies a particular frame displayed in the video image 114, in response to message the video selector 130 locates a corresponding frame associated with the selected frame within the least compressed video file and sends it to the client as a snapshot [as the switch causes the playback from the identified frame corresponding to the location it is interpreted as location at which to commence playback], para 0039);
identifying a frame of video in the second video stream that corresponds with the identified location in the first video stream using the playback device (the server 132 stores data that indicates the correlation between the frames in video file 134 and the frames in video file 140, and when switching the video transmitter 136 begins transmission from the video file 140 at a frame [identifying a frame in the second video stream] that corresponds to the last frame sent from video file 134 [identified location in the first video stream], para 0036, 0037, the processor 122 transmits a message to the server 132, the message includes data that identifies a particular frame displayed in the video image 114, in response to message the video selector 130 locates a corresponding frame [corresponds with the identified location] associated with the selected frame [identifying a frame of video in the second video stream] within the least compressed video file and sends it to the client as a snapshot, para 0039);
requesting the identified frame of video in the second video stream using the playback device (when switching the video transmitter 136 begins transmission from the video file 140 [second video stream] at a frame that corresponds to the last frame sent from video file 134 [transmitting the identified frame of the video file 140 corresponding to the video file 134 is interpreted as requesting the identified frame], para 0036, 0037, the processor 122 transmits a message to the server 132, in response to message the video selector 130 locates a corresponding frame [interpreted as requesting the identified frame] associated with the selected frame within the least compressed video file and sends it to the client as a snapshot, para 0039);
decoding the identified frame of video in the second video stream using the playback device (the processor 122 transmits a message to the server 132, in response to message the video selector 130 locates a corresponding frame [interpreted as requesting the identified frame] associated with the selected frame within the least compressed video file and sends it to the client as a snapshot, para 0039; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 226 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device, para 0048, 0049);
displaying the decoded frame of video in the second video stream while buffering video from the first video stream (a user continues viewing the video in real time [interpreted as while buffering video from the first video stream] while selected snapshot are being prepared and set to the users device, para 0055; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 226 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device, para 0048, 0049), but lacks the teaching of requesting and buffering video from the first video stream starting at the identified location using the playback device; decoding video from the first video stream using the playback device; and displaying the decoded video from the first video stream when the first video stream is sufficiently buffered for continuous playback.

Cont. in Next Supplemental Box

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claims 1, 19, 20 (Cont.)

However, Cornelio teaches requesting from the first video stream starting at an identified location using the playback device (in response to receiving an image request, an initial image location is identified within a video stream, the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 708 the initial image is retrieved and at step 710 the image is sent to the client device, para 0097-0099); decoding video from the first video stream using the playback device (at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112, para 0100); and displaying the decoded video from the first video stream (at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112, para 0100). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Cornelio to incorporate requesting from the first video stream starting at the identified location using the playback device; decoding video from the first video stream using the playback device; and displaying the decoded video from the first video stream into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches buffering video from the video stream and displaying the video stream when the video stream is sufficiently buffered for continuous playback (the low resolution copy of the detailed image is transmitted via the transmission channel 20 and buffer 23 to decoder 24, which displays the low resolution image, col 5, lines 54-65; figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image (buffering video from the video stream) and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed (the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as displaying sufficiently buffered for continuous playback), col.7, lines 30-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate requesting and buffering video from the first video stream starting at the identified location and displaying the decoded video from the first video stream when the first video stream is sufficiently buffered for continuous playback into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 27-28).

Regarding claim 2, Cornelio further teaches wherein the first video stream is encoded at a first bitrate, the second video stream is encoded at a second bitrate, and the first bitrate is smaller than the second bitrate (the storage 144 contains multiple versions of a video file and contains a video file 134 that has been pre compressed at a compression ratio lower resolution (first bitrate) and lower quality, and a second video file 140 that has been pre-compressed using a different lower compression ratio which is of higher resolution (second bitrate) and higher quality than the images represented in video file 134, para 0033). However, to establish first bitrate is smaller or greater than the second bitrate would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings to incorporate the first bitrate is greater than the second bitrate into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).

Regarding claim 4, Cornelio further teaches wherein the first video stream is encoded at a first resolution, the second video stream is encoded at a second resolution, and the first resolution is smaller than the second resolution (the storage 144 contains multiple versions of a video file and contains a video file 134 that has been pre compressed at a compression ratio lower resolution (first resolution) and lower quality, and a second video file 140 that has been pre-compressed using a different lower compression ratio which is of higher resolution (second resolution) and higher quality than the images represented in video file 134, para 0033). However, to establish first resolution is smaller or greater than the second resolution would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings to incorporate the first resolution is greater than the second resolution into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).

Regarding claim 6, Cornelio further teaches wherein identifying a frame of video in the second video stream that corresponds with the identified location in the first video stream comprises determine a frame of video in the second stream that corresponds to the identified location within the first video stream at which to commence playback (the server 132 stores data that indicates the correlation between the frames in video file 134 and the frames in video file 140, and when switching the video transmitter 136 begins transmission from the video file 140 at a frame (identifying a frame in the second video stream) that corresponds to the last frame sent from video file 134 (identified location in the first video stream), para 0036, 0037), but lacks the teaching of comprises requesting an index of the second video stream and using the index to determine a frame of video in the second stream.
However, Cornelio teaches requesting an index of the video stream and using the index to determine a frame of video in the stream that corresponds to the identified location within the first video stream at which to commence playback (fig 8 shows a video stream 800 and includes image data 185-195 corresponding to image data locations 802-824, upon a request for a next image is received from a client 102 a direction indicator and the frame offset is utilized, when the next image is identified to have a frame offset of 3 and a direction indicator of "back", and upon the current image location corresponding to the image location 812 then the next image is identified to at location 806 with the image data 187). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Cornelio to incorporate requesting an index of the second video stream and using the index to determine a frame of video in the second stream into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Regarding claim 7, Cornelio further teaches wherein the first video stream and the second video stream are stored in separate container files (the server 132 includes the storage 144 which stores video file 134 and video file 140 [separate container files], and contains multiple versions of a video file and contains a video file 134 that has been pre compressed at a compression ratio lower resolution and lower quality [first video stream], and a second video file 140 that has been pre-compressed using a different lower compression ratio which is of higher resolution [second video stream] and higher quality than the images represented in video file 134, para 0033, 0036), but lacks the teaching of and requesting and buffering video from the first video stream starting at the identified location using a playback device further comprises requesting portions of files from at least one remote server via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device.

However, Cornelio teaches requesting from the first video stream starting at the identified location using the playback device further comprises requesting portions of files from at least one remote server via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device (in response to receiving an image request, an initial image location is identified within a video stream, the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112, para 0097-0100; the web server 102 and the client 110 are connected through the internet, and the client 110 includes video display 12 and a video decoder 108 implemented on a HTTP client such as a browser, and is dynamically linked to web browser [the client requests files from the web server via the HTTP browser interpreted as remote server via Hypertext Transfer Protocol byte range requests], para 0020, 0021). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Cornelio to incorporate requesting from the first video stream starting at the identified location using a playback device further comprises requesting portions of files from at least one remote server via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device into the invention of Cornelio. The motivation would have been to send higher quality of images over a limited bandwidth (see Cornelio para 0011).

Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches comprises buffering video from the video stream (figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as buffering video from the video stream], col.7, lines 30-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate decoding the buffered video and displaying the decoded video into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 53-57).

Regarding claim 11, Cornelio further teaches comprising configuring the playback device to decode the identified frame of video in the second video stream based upon the encoding of the identified frame of video in the second video stream (the processor 122 transmits a message to the server 132, in response to message the video selector 130 locates a corresponding frame [interpreted as requesting the identified frame] associated with the selected frame within the least compressed video file and sends it to the client as a snapshot, para 0039, fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device [as the identified frame of the video file is decoded it is inherent that the video was encoded], para 0048, 0049).

Regarding claim 13, Cornelio further teaches comprising decoding the video from the first video stream and displaying the decoded video (the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 708 the initial image is retrieved and at step 710 the image is sent to the client device at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112, para 0100), but lacks the teaching of decoding the buffered video.

Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches comprises decoding the buffered video and displaying the decoded video (the low resolution copy of the detailed image is transmitted via the transmission channel 20 and buffer 23 to decoder 24, which displays the low resolution image, col.5, lines 64-65; figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted decoding the buffered video], col.7, lines 30-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate decoding the buffered video and displaying the decoded video into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 53-57).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of

Regarding claim 14, Cornelio further teaches comprising configuring the playback device to decode content from the first video stream based upon the encoding of the first video stream (the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 708 the initial image is retrieved and at step 710 the image is sent to the client device at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 816 on the video display 112 [as the identified frame of the video file is decoded it is inherent that the video was encoded interpreted as based upon the encoding of the first video stream], para 0100).

Regarding claim 16, Cornelio further teaches displaying the decoded frame of video while buffering portions of video from the video stream further (a user continues viewing the video in real time [interpreted as while buffering video from the first video stream] while selected snapshot are being prepared and set to the users device, para 0055; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device, para 0048, 0049), but lacks the teaching of displaying the decoded frame of video in the trick play stream comprises displaying the same decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches comprises displaying the decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display (the low resolution copy of the detailed image is transmitted via the transmission channel 20 and buffer 23 to decoder 24, which displays the low resolution image, col.5, lines 54-65; figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as displaying the decoded frame of video continuously until video stream are adequately buffered], col.7, lines 30-58). Furthermore, to establish to display the same decoded frame continuously would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate displaying the decoded frame of video in the trick play stream while buffering portions of video from the video stream further comprises displaying the same decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 27-29).

Claims 3, 5, 10, 17, 18, lack an inventive step under PCT Article 33(3) as being obvious over Cornelio in view of Brusewitz and further in view of Baldwin et al., hereinafter referred to as Baldwin.

Regarding claim 3, Cornelio further teaches the second video stream (shown above in claim 1), but lacks the teaching of wherein the second video stream is a trick play stream and each frame of the second video stream is encoded as an intra frame
Baldwin is in the field of a trick mode support for video on demand with long intra frame intervals (title, abstract) and teaches wherein the video stream is a trick play stream and wherein frames of the video stream are encoded as an intra frame (fig.3 shows a trick mode implementation with multiple streams 302a-302e encoded with staggered intra frame intervals [interpreted as trick play stream], each shaded area represents an encoded intra frame, the video stream 302a represents media content encoded with an intra-frame interval of 10 seconds, para 0021-0024). Furthermore, to establish that each frame of the second video stream is encoded as an intra frame would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Baldwin to incorporate wherein the second video stream is a trick play stream and each frame of the second video stream is encoded as an intra frame into the invention of Cornelio. The motivation would have been to provide staggered intra frames to provide quicker responses when the server receives request it selects the nearest future intra frame (see Baldwin para 0007).

Regarding claim 5, Cornelio further teaches the second video stream (shown above in claim 1), but lacks the teaching of wherein the second video stream is a trick play stream and each frame of the second video stream is encoded as an intra frame.
Baldwin is in the field of a trick mode support for video on demand with long intra frame intervals (title, abstract) and teaches wherein the video stream is a trick play stream and wherein frames of the video stream are encoded as an intra frame (fig.3 shows a trick mode implementation with multiple streams 302a-302e encoded with staggered intra frame intervals [interpreted as second video stream is a trick play stream], each shaded area represents an encoded intra frame, the video stream 302a, 302b represents media content encoded with an intra-frame interval of 10 seconds, para 0021-0024). Furthermore, to establish that each frame of the second video stream is encoded as an intra frame would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Baldwin to incorporate wherein the second video stream is a trick play stream and each frame of the second video stream is encoded as an intra frame into the invention of Cornelio. The motivation would have been to provide staggered intra frames to provide quicker responses when the server receives request it selects the nearest future intra frame (see Baldwin para 0007).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 10, Cornelio lacks the teaching of wherein the first video stream is selected from a plurality of alternative video streams. Baldwin is in the field of a trick mode support for video on demand with long intra frame intervals (title, abstract) and teaches wherein the first video stream is selected from a plurality of alternative video streams (a stream selector 112 controls selection of appropriate video streams based on client request, and selects one stream from a set of video streams, based on the user requests. If the user requests by selecting a play control function then the stream is selected from a set of normal rate forward playing video streams, and when the user selects a fast forward control function then a stream is selected from a set of fast forward streams [interpreted a alternative video streams], para 0016). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Baldwin to incorporate wherein the first video stream is selected from a plurality of alternative video streams into the invention of Cornelio. The motivation would have been to provide staggered intra frames to provide quicker responses when the server receives request it selects the nearest future intra frame (see Baldwin para 0007).

Regarding claim 17, Cornelio lacks the teaching of wherein the identified frame of video in the trick play stream is downloaded together with at least part of at least one subsequent frame in the stream.
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches wherein the frame of video in the stream is downloaded together with at least part of at least one subsequent frame in the stream (figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as frame of video in the stream is downloaded together with one subsequent frame in the stream], col.7, lines 30-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate wherein the identified frame of video in the trick play stream is downloaded together with at least part of at least one subsequent frame in the stream into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 27-29)
Baldwin is in the field of a trick mode support for video on demand with long intra frame intervals (title, abstract) and teaches wherein the identified frame of video stream is a trick play stream (fig 3 shows a trick mode implementation with multiple streams 302a-302e encoded with staggered intra frame intervals [interpreted as trick play stream], each shaded area represents an encoded intra frame, the video stream 302a represents media content encoded with an intra-frame interval of 10 seconds [identified frame], para 0021-0024). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Baldwin to incorporate the identified frame of video in the trick play stream into the invention of Cornelio. The motivation would have been to provide staggered intra frames to provide quicker responses when the server receives request it selects the nearest future intra frame (see Baldwin para 0007).

Regarding claim 18, Cornelio further teaches displaying the decoded frame of video while buffering portions of video from the video stream further (a user continues viewing the video in real time [interpreted as while buffering video from the first video stream] while selected snapshot are being prepared and set to the users device, para 0055; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device, para 0048, 0049), but lacks the teaching of wherein displaying the decoded frame of video in the trick play stream further comprises displaying the same decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display.
Brusewitz is in the field of display and transmission of high resolution images on a video system (abstract) and teaches comprises displaying the decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display (the low resolution copy of the detailed image is transmitted via the transmission channel 20 and buffer 23 to decoder 24, which displays the low resolution image, col.5, lines 54-65; figs.4A-4D shows a low resolution video image produced and displayed immediately prior to the display of the high resolution image segments, in fig.4B only the top portion of the low quality image is replaced with a higher quality image and further in the fig.4C upon the completion of the high resolution download of the image, the entire high resolution image is displayed [the displaying of the low resolution image by continuously/gradually improving the quality while the high resolution image is being downloaded is interpreted as displaying the decoded frame of video continuously until video stream are adequately buffered], col.7, lines 30-58). Furthermore, to establish to display the same decoded frame continuously would have been a matter of design choice and would have been a known practice in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Brusewitz to incorporate displaying the decoded frame of video in the trick play stream while buffering portions of video from the video stream further comprises displaying the same decoded frame of video continuously until the portions of video from the video stream are adequately buffered for display into the invention of Cornelio. The motivation would have been to diminish the viewer's perception of delay (see Brusewitz col.7, lines 27-29).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claim 8 lacks an inventive step under PCT Article 33(3) as being obvious over Cornelio in view of Brusewitz and further in view of Soroushian et al., hereinafter referred to as Soroushian.

Regarding claim 8, Cornelio lacks the teaching of wherein the first video stream and the second video stream are stored in separate Extensible Binary Markup Language (EBML) container files.
Soroushian is in the field of to provide critical information or playback data included in a multimedia content to be decoded and presented (abstract) and teaches wherein the first video stream and the second video stream are stored in separate Extensible Binary Markup Language (EBML) container files (fig.4 shows a multimedia file 40 which includes Extensible Binary Markup Language (EBML) element 41 and further includes the tracks section 45 information which includes video data, playback data, para 0023). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate wherein the first video stream and the second video stream are stored in separate Extensible Binary Markup Language (EBML) container files into the invention of Cornelio. The motivation would have been optimize the process of decoding and presenting partially available multimedia content including critical information (see Soroushian para 0007).

Claims 9, 12, 15, lack an inventive step under PCT Article 33(3) as being obvious over Cornelio in view of Brusewitz and further in view of Thorwirth.

Regarding claim 9, Cornelio further teaches comprising retrieving a file using the playback device that identifies the first video stream and the second video stream (a user selects a pause button to pause the playback of a video, and upon which the processor 122 transmits a message to the server 132, the message includes data [retrieving a file] that identifies a particular frame displayed in the video image 114, in response to message the video selector 130 locates a corresponding frame associated with the selected frame [that identifies first video stream and the second video stream] within the least compressed video file and sends it to the client as a snapshot, para 0039; the user provides an input to switch between transmission rates of a video, upon which the video transmitter 136 begins transmission from the video file 140 [second video stream] at a frame that corresponds to the last frame sent from video file 134 [first video stream], para 0036, 0037), but lacks the teaching of comprising retrieving a top level index file using the playback device.
Thorwirth is in the field of enhance the security of playlists composed for a client device with encoding information in the playlists (abstract) and teaches retrieving a top level index file using the playback device (the playlist encodes information using a sequence of links that refer to chunks, and each chunk differs in watermark information, the content retrieved [retrieving the encoding information] using a playlist exhibits an individual sequence of watermarked chunks that are encoded information [determine the encoding], para 0046; an index within a container file allows fast access to individual sections/chunks, and the chunks are retrieved by a client via the playlist and each is encoded at a different bitrate by the adaptive bitrate streaming system, the SMIL top level index file and the indexes within each of the container files provide a complete index to all of the alternative chunks for different sections of a piece of content, para 0009). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate retrieving a top level index file using the playback device into the invention of Cornelio. The motivation would have been to provide enhanced security of content distribution using individualized playlists (see para 0018).

Regarding claim 12, Cornelio further teaches wherein configuring the playback device to decode the identified frame of video in the second video stream based upon the encoding of the identified frame of video in the second video stream (the processor 122 transmits a message to the server 132, in response to message the video selector 130 locates a corresponding frame [interpreted as requesting the identified frame] associated with the selected frame within the least compressed video file and sends it to the client as a snapshot, para 0039; fig.2 shows the step 224 wherein less compressed data [second video stream] for the selected frame of video [identified frame] is transmitted from the server to the client, and at step 228 the less compressed data is decoded by the client device to display a high resolution image/snapshot at the client device [as the identified frame of the video file is decoded it is inherent that the video was encoded interpreted as based upon the encoding of the second video stream], para 0048, 0049), but lacks the teaching of comprises using a top level index to locate encoding information for the second video stream and retrieving the encoding information to determine the encoding of the second video stream.
Thorwirth is in the field of enhance the security of playlists composed for a client device with encoding information in the playlists (abstract) and teaches using a top level index to locate encoding information for the video stream (in an adaptive streaming system the source media is often organized on a media server by using a top level index file pointing to a number of alternate streams that contain actual video and audio data, further the source media is encoded at multiple bit rates and the client device switches between streaming the different encodings depending on the available resources, para 0009) and retrieving the encoding information to determine the encoding of the video stream (the playlist encodes information using a sequence of links that refer to chunks, and each chunk differs in watermark information, the content retrieved [retrieving the encoding information] using a playlist exhibits an individual sequence of watermarked chunks that are encoded information [determine the encoding], para 0046; an index within a container file allows fast access to individual sections/chunks, and the chunks are retrieved by a client via the playlist and each is encoded at a different bitrate by the adaptive bitrate streaming system, the SMIL top level index file and the indexes within each of the container files provide a complete index to all of the alternative chunks for different sections of a piece of content, para 0009). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate using a top level index to locate encoding information for the video stream and retrieving the encoding information to determine the encoding of the video stream into the invention of Cornelio. The motivation would have been to provide enhanced security of content distribution using individualized playlists (see para 0018).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 15, Comelio further teaches wherein configuring the playback device to decode content from the first video stream based upon the encoding of the first video stream (the image provider 404 identifies the image location 810 within the video stream 800 as the initial image location, at step 708 the initial image is retrieved and at step 710 the image is sent to the client device at step 712 upon receiving the image data at client device 110, the browser 402 decodes and displays the image data as video image 516 on the video display 112 [as the identified frame of the video file is decoded it is inherent that the video was encoded interpreted as based upon the encoding of the first video stream], para 0100), but lacks the teaching of comprises using a top level index to locate encoding information for the first video stream and retrieving the encoding information to determine the encoding of the first video stream.
Thorwirth is in the field of enhance the security of playlists composed for a client device with encoding information in the playlists (abstract) and teaches using a top level index to locate encoding information for the video stream (in an adaptive streaming system the source media is often organized on a media server by using a top level index file pointing to a number of alternate streams that contain actual video and audio data, further the source media is encoded at multiple bit rates and the client device switches between streaming the different encodings depending on the available resources, para 0009) and retrieving the encoding information to determine the encoding of the video stream (the playlist encodes information using a sequence of links that refer to chunks, and each chunk differs in watermark information, the content retrieved [retrieving the encoding information] using a playlist exhibits an individual sequence of watermarked chunks that are encoded information [determine the encoding], para 0046; an index within a container file allows fast access to individual sections/chunks, and the chunks are retrieved by a client via the playlist and each is encoded at a different bitrate by the adaptive bitrate streaming system, the SMIL top level index file and the indexes within each of the container files provide a complete index to all of the alternative chunks for different sections of a piece of content, para 0009). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate using a top level index to locate encoding information for the video stream and retrieving the encoding information to determine the encoding of the video stream into the invention of Comelio. The motivation would have been to provide enhanced security of content distribution using individualized playlists (see para 0018).

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 03351AB.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US14/39852	International filing date *(day/month/year)* 28 May 2014 (28.05.2014)	(Earliest) Priority Date *(day/month/year)* 30 May 2013 (30.05.2013)
Applicant SONIC IP, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I:

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☒ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/39852

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fee must be paid.

Group I: Claims 1-18 are directed toward a method, system, and non-transitory computer-readable storage medium for supporting video streaming with trick play.

Group II: Claims 19-41 are directed toward a method, system, and non-transitory computer-readable storage medium for video playback with trick play.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

-***-See Supplemental Page-***-

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-18

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/39852

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04N 21/2387 (2014.01)
CPC - G06F 3/04817
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) Classification(s): H04N 21/2387; H04N 11/04; H04L 12/28 (2014.01)
CPC Classification(s): G06F 3/04817; G06F 3/04855; G11B 27/005

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); Google/ GooglePatents; IEEE; ProQuest.
Keywords: video; streaming; trick play; playlist; time code.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2012/0170642 A1 (BRANESS, J et al.) 5 July 2012; Abstract; paragraphs [0008], [0023], [0027], [0070].	1, 3-5, 7, 9-11, 13 and 15-17 --- 2, 6, 8, 12, 14 and 18
Y	US 2013/0019273 A1 (MA, K et al.) 17 January 2013; Abstract; paragraphs [0007], [0031].	2, 8 and 14
Y	US 2012/0311094 A1 (BIDERMAN, D et al.) 6 December 2012; Abstract; paragraphs [0052], [0139], [0144].	6, 12 and 18
A	US 2013/0128962 A1 (RAJGOPALAN, S et al.) 23 May 2013; whole document.	1-18

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 October 2014 (21.10.2014)	05 DEC 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/39852

-***-Continued from Box III: Lack of Unity of Invention-***-
The special technical features of Group I include encoding video into multiple adaptive bitrate streams; receiving a playlist request for one of the adaptive bitrate streams; and sending a playlist identifying the stored files of the selected stream, which are not present in Group II.

The special technical features of Group II include playing back video from the down loaded selected stream files; downloading the trick play files based on the playlist; and playing back video from the downloaded trick play files, which are not present in Group I.

The common technical features shared by Groups I and II are a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor to execute the steps of: downloading files of encoded video from a selected stream of encoded video; sending and receiving a trick play playlist request corresponding to the selected stream; and sending and receiving a trick play playlist identifying files of encoded video from a trick play stream of encoded video corresponding to the selected stream.

However, these common features are previously disclosed by US 2012/0311094 A1 to Biderman, D et al. (hereinafter "Biderman"). Biderman discloses a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor to execute the steps (system may be implemented with a processor executing instructions stored on a memory, paragraph [0179]) of: downloading files of encoded video from a selected stream of encoded video (player device downloads and uses a standard playlist including URLs refering to all of the content coimprising segmented media files, which the player then downloads in order, paragraphs [0010] and [0047]); sending and receiving a trick play playlist request corresponding to the selected stream; and sending and receiving a trick play playlist identifying files of encoded video from a trick play stream of encoded video corresponding to the selected stream (player device may request and download from a server an I-frame playlist for the content that allows playback at a faster than normal rate, called a "trick play" mode, paragraphs [0010] and [0055]).

Since the common technical features are previously disclosed by the Biderman reference, these common features are not special and so Groups I and II lack unity.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Jason D. Wolfe
KPPB LLP
2400 E. Katella, Suite 1050
Anaheim, CA 92806
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	05 DEC 2014
Applicant's or agent's file reference 03351AB.PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/39852	28 May 2014 (28.05.2014)	30 May 2013 (30.05.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04N 21/2387 (2014.01)
CPC - G06F 3/04817

Applicant SONIC IP, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to th IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	21 October 2014 (21.10.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:

   ☐ paid additional fees.

   ☐ paid additional fees under protest and, where applicable, the protest fee.

   ☐ paid additional fees under protest but the applicable protest fee was not paid.

   ☒ not paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fee must be paid.

Group I: Claims 1-18 are directed toward a method, system, and non-transitory computer-readable storage medium for supporting video streaming with trick play.

Group II: Claims 19-41 are directed toward a method, system, and non-transitory computer-readable storage medium for video playback with trick play.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I include encoding video into multiple adaptive bitrate streams; receiving a playlist request for one of the adaptive bitrate streams; and sending a playlist identifying the stored files of the selected stream, which are not present in Group II.

The special technical features of Group II include playing back video from the down loaded selected stream files; downloading the trick play files based on the playlist; and playing back video from the downloaded trick play files, which are not present in Group I.

The common technical features shared by Groups I and II are a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor to execute the steps of: downloading files of encoded video from a selected stream of encoded video; sending and receiving a trick play playlist request corresponding to the selected stream; and sending and receiving a trick play playlist identifying files of encoded video from a trick play stream of encoded video corresponding to the selected stream.

However, these common features are previously disclosed by US 2012/0311094 A1 to Biderman, D et al. (hereinafter "Biderman"). Biderman discloses a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor to execute the steps (system may be implemented with a processor executing instructions stored on a memory, paragraph [0179]) of: downloading files of encoded video from a selected stream of encoded video (player device downloads and uses a standard playlist including URLs referring to all of the content coimprising segmented media files, which the player then downloads in order, paragraphs [0010] and [0047]); sending and receiving a trick play playlist request corresponding to the selected stream; and sending and receiving a trick play playlist identifying files of encoded video from a trick play stream of encoded video corresponding to the selected stream (player device may request and download from a server an I-frame playlist for the content that allows playback at a faster than normal rate, called a "trick play" mode, paragraphs [0010] and [0055]).

Since the common technical features are previously disclosed by the Biderman reference, these common features are not special and so Groups I and II lack unity.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

   ☐ all parts.

   ☒ the parts relating to claims Nos. 1-18

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	2, 6, 8, 12, 14 and 18	YES
	Claims	1, 3-5, 7, 9-11, 13 and 15-17	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-18	NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1, 3-5, 7, 9-11, 13 and 15-17 lacks novelty under PCT Article 33(2) as being anticipated by US 2012/0170642 A1 to Braness, J et al. (hereinafter "Braness").

As per claim 1, Braness discloses a method of supporting video streaming with trick play, comprising: encoding video into multiple adaptive bitrate streams and a corresponding trick play stream (a method is provided for visual search of media encoded for adaptive bitrate streaming using trick play streams, paragraph [0008]), each of the streams comprising files of encoded video (the EBML file may contain the trick play stream in which visual search of media encoded is with trick play stream, paragraphs [0008], [0023]); storing the files for each stream (Files generated by a source encoder may be stored on an HTTP server for streaming to playback devices, paragraph [0050]); receiving a playlist request for a selected one of the adaptive bitrate streams (the top level index SMIL file (playlist) can be generated when a playback device requests the commencement of playback of the encoded media in which media encoded may be for adaptive bitrate streaming, paragraphs [0008], [0070]); sending a playlist identifying the stored files of the selected stream (each of the alternative portions of encoded video may be written (sending) to a separate container file in which the playback device can use the top level index file to identify the URI for a more appropriate alternative stream (selected stream) paragraphs [0027], [0101]); receiving a playlist request for the trick play stream (the index may enable the playback device to use multiple byte range requests to select portions of the file containing the trick play stream which may be through HTTP server, paragraph [0044]) and sending a playlist identifying the stored files of the trick play stream (the playback device may use the SMIL file (playlist) to identify the portions of the container file (stored files) to download in which the container file contains the trick play stream, paragraphs [0027], [0070]).

As per claim 7, Braness discloses a system for supporting video streaming with trick play, comprising: an encoder to encode video into multiple adaptive bitrate streams and a corresponding trick play stream (a method is provided for visual search of media encoded for adaptive bitrate streaming using trick play streams, paragraph [0008]), each of the streams comprising files of encoded video (the EBML file may contain the trick play stream in which visual search of media encoded is with trick play stream, paragraphs [0008], [0023]); a download server to store the files for each stream (Files generated by a source encoder may be stored on an HTTP server for streaming to playback devices, paragraph [0050]); and a management server to: receive a playlist request for a selected one of the adaptive bitrate streams (the top level index SMIL file (playlist) can be generated when a playback device requests the commencement of playback of the encoded media in which media encoded may be for adaptive bitrate streaming in which a playback device may request the top level index file resident on the server (management server), paragraphs [0008], [0070], [0095]); send a playlist identifying the stored files of the selected stream (each of the alternative portions of encoded video may be written (sending) to a separate container file in which the playback device can use the top level index file to identify the URI for a more appropriate alternative stream (selected stream) paragraphs [0027], [0101]); receive a playlist request for the trick play stream (the index may enable the playback device to use multiple byte range requests to select portions of the file containing the trick play stream which may be through HTTP server, paragraph [0044]); and send a playlist identifying the stored files of the trick play stream (the playback device may use the SMIL file (playlist) to identify the portions of the container file (stored files) to download in which the container file contains the trick play stream, paragraphs [0027], [0070]).

As per claim 13, Braness discloses a non-transitory computer readable medium encoded with a computer program including instructions to cause a processor (processor is provided that is configured by a source encoder application stored in the memory, paragraph [0027]) to: encode video into multiple adaptive bitrate streams (media encoded may be for adaptive bitrate streaming, paragraph [0008]) and a corresponding trick play stream, each of the streams comprising files of encoded video (the index information may enable the playback device to request byte ranges that may correspond to Cluster elements within the Matroska container file that may contain specific portions of encoded media through HTTP from the server, paragraph [0044]); store the files for each stream (Files generated by a source encoder may be stored on an HTTP server for streaming to playback devices, paragraph [0050]); receive a playlist request for a selected one of the adaptive bitrate streams (the top level index SMIL file (playlist) can be generated when a playback device requests the commencement of playback of the encoded media in which media encoded may be for adaptive bitrate streaming, paragraphs [0008], [0070]); send a playlist identifying the stored files of the selected stream (each of the alternative portions of encoded video may be written (sending) to a separate container file in which the playback device can use the top level index file to identify the URI for a more appropriate alternative stream (selected stream) paragraphs [0027], [0101]); receive a playlist request for the trick play stream (the index may enable the playback device to use multiple byte range requests to select portions of the file containing the trick play stream which may be through HTTP server, paragraph [0044]); and send a playlist identifying the stored files of the trick play stream (the playback device may use the SMIL file (playlist) to identify the portions of the container file (stored files) to download in which the container file contains the trick play stream, paragraphs [0027], [0070]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

-***-Continued from Box V: Citations and Explanations-***-
As per claims 3, 9 and 15, Braness discloses the method of claim 1, the system of claim 7 and the computer readable medium of claim 13. Braness further discloses wherein: the files in each stream are associated with successive time codes (the frames of the trick play stream are stored within Cluster elements having time codes corresponding to the Cluster elements of the alternative stream (successive time codes), paragraph [0042]); the playlist request for the selected stream specifies a current time code; and the playlist for the selected stream identifies files in the selected stream that are associated with successive time codes greater than the current time code (a Cluster element has a timecode associated with it, and each subsequent Block element specifies the timecode relative to the Cluster timecode, and the playback request will specify a target Cluster using a CueTime, paragraphs [0075] and [0082]).

As per claims 4, 10 and 16, Braness discloses the method of claim 3, the system of claim 9 and the computer readable medium of claim 15. Braness further discloses wherein: the playlist request for the trick play stream (a playback device requests the top level index file resident on the server and uses the index information to identify the streams that are available to the playback device in which Playback of trick play streams, [0095]) includes a trick play time code that is greater than the current time code; and the trick play playlist identifies files in the trick play stream associated with successively decreasing time codes that are each less than the trick play time code (playback requests indicate a CueTime to start, and a user may reverse direction through a trick play file having timecodes corresponding to the regular play file, paragraphs [0042], [0046], [0074], and [0082]).

As per claim 5, Braness discloses the method of claim 1. Braness further discloses wherein: the encoding includes encoding the video based on a distinct combination of an encoding bitrate and a video frame rate for each stream (the portion of video is encoded in each stream as a single closed group of pictures starting with an IDR frame in which streams that encode the same media content may be in different ways and/or at different bitrates (distinct combination) to enable adaptive bitrate streaming, paragraphs [0042], [0046]); and the encoding bit rate and video frame rate for the trick play stream are less than the encoding bitrates and video frame rates, respectively, for the adaptive bitrate streams (the trick play stream video may be encoded at a lower bitrate, frame rate and a lower resolution that may be with respect to the source video, writing each of the alternative portions of encoded video to a separate container file in which source media may be encoded as a number of alternative streams for adaptive bitrate streaming, paragraphs [0008], [0041], [0042]).

As per claim 11, Braness discloses the system of claim 7. Braness further discloses wherein: the encoder is further configured to encode the video based on a distinct combination of an encoding bitrate and a video frame rate for each stream (the portion of video is encoded in each stream as a single closed group of pictures starting with an IDR frame in which streams that encode the same media content may be in different ways and/or at different bitrates (distinct combination) to enable adaptive bitrate streaming, paragraphs [0042], [0046]); and the encoding bit rate and video frame rate for the trick play stream are less than the encoding bitrates and video frame rates, respectively, for the adaptive bitrate streams (the trick play stream video may be encoded at a lower bitrate, frame rate and a lower resolution that may be with respect to the source video, writing each of the alternative portions of encoded video to a separate container file in which source media may be encoded as a number of alternative streams for adaptive bitrate streaming, paragraphs [0008], [0041], [0042]).

As per claim 17, Braness discloses the computer readable medium of claim 13. Braness further discloses wherein: the instruction to cause the processor to encode include instructions to cause the processor (processor is configured by a source encoder application stored in the memory in which a user instruction is provided to perform a visual search using the trick play stream, paragraphs [0027], [0074]) to encode the video based on a distinct combination of an encoding bitrate and a video frame rate for each stream (the portion of video is encoded in each stream as a single closed group of pictures starting with an IDR frame in which streams that encode the same media content may be in different ways and/or at different bitrates (distinct combination) to enable adaptive bitrate streaming, paragraphs [0042], [0046]); and the encoding bit rate and video frame rate for the trick play stream are less than the encoding bitrates and video frame rates, respectively, for the adaptive bitrate streams (the trick play stream video may be encoded at a lower bitrate, frame rate and a lower resolution that may be with respect to the source video, writing each of the alternative portions of encoded video to a separate container file in which source media may be encoded as a number of alternative streams for adaptive bitrate streaming, paragraphs [0008], [0041], [0042]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

-***-Continued from Previous Supplemental Box-***-
Claims 2, 8 and 14 lack an inventive step under PCT Article 33(3) as being obvious over Braness in view of US 2013/0019273 A1 to Ma, K et al. (hereinafter "Ma").

As per claims 2, 8 and 14, Braness discloses the method of claim 1, the system of claim 7 and the computer readable medium of claim 13. Braness further discloses wherein: the encoded video in the files corresponding to the adaptive bitrate streams comprises encoded video frames (media encoded may be for adaptive bitrate streaming in which encoded video may be written each of alternative portions to a separate container file that uses the source encoder, paragraph [0008]); and the encoded video in the files for the trick play stream (encoded video may be written each of alternative portions to a separate container file that uses the source encoder in which trick play stream may be written to a separate container file, paragraph [0008]). However, Braness fail to disclose including non-key frames each encoded based on video from one or more previous video frames, and key frames interspersed among the non-key frames, each of the key frames encoded independent of previous video frames; comprises key frames without non-key frames. Ma discloses including non-key frames each encoded based on video from one or more previous video frames (fast forward uses bursts of consecutive frames (both key frames and non-key frames) in which the first (D*F/ R) frames of each segment are played out, where F is the frame rate of the encoded video and in which all key frames within the previously parsed segment should be used before proceeding to step 412 that may be to retrieve and parse a new segment, paragraphs [0007], [0031]), and key frames interspersed among the non-key frames, each of the key frames encoded independent of previous video frames; comprises key frames without non-key frames (fast forward uses bursts of consecutive frames (both key frames and non-key frames) (interspersed) in which once the trick play bitrate is selected, processing proceeds to step 214 in which the next segment (independent of previous video frames) is downloaded such that it adheres to the selected trick play bitrate in which the segment is parsed to extract the key frames (without non-key frames) and processing proceeds to step 216, paragraph [0025]). It would have been a matter of obvious experimentation to one of ordinary skill in the art at the time of the invention to modify Braness's invention to include including non-key frames each encoded based on video from one or more previous video frames, and key frames interspersed among the non-key frames, each of the key frames encoded independent of previous video frames; comprises key frames without non-key frames, as taught by Ma, for the benefit of providing a method that includes faster data rate for normal playout using key and non-key frames.

Claims 6, 12 and 18 lack an inventive step under PCT Article 33(3) as being obvious over Braness in view of US 2012/0311094 A1 to Biderman, D et al.(hereinafter " Biderman").

As per claim 6, Braness discloses the method of claim 1. However, Braness fails to disclose wherein: the storing includes storing the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein. Biderman discloses wherein: the storing includes storing the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein (Multiple media files may be stored on the server in which media files may be retrieved using the URIs (corresponding list of network addresses) for those files in the play list in which Indexer 440 may create files with a listing of an order for identifiers corresponding to each file created by segmenter 430, paragraphs [0052], [0139], [0144]); and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein (a server provides the play list file 1001 that may contain the two different sets of URLs (identifying stored files) that may allow either 1 x playback or fast forward or reverse playback (trick play) in which a play list file may include Uniform Resource Identifiers (URIs) (list of network addresses) that may direct the client to the segmented media files stored on a server, paragraphs [0047], [0167]). It would have been a matter of obvious experimentation to one of ordinary skill in the art at the time of the invention to modify Braness's invention, to include wherein: the storing includes storing the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein, as taught by Biderman, for the benefit of providing single large file to store media content that can be used by the client for retrieving portion of contents based on the URIs.

As per claim 12, Braness discloses the system of claim 7. However, Braness fails to disclose wherein: the download server is configured to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein. Biderman discloses wherein: the download server is configured to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein (Multiple media files may be stored on the server (download server) in which the URIs may identify a location from which a client can download a supplementary media file and in which media files may be retrieved using the URIs (corresponding list of network addresses) for those files in the play list in which Indexer 440 may create files with a listing of an order for identifiers corresponding to each file created by segmenter 430, paragraphs [0052], [0139], [0144]); and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein (a server provides the play list file 1001 that may contain the two different sets of URLs (identifying stored files) that may allow either 1 x playback or fast forward or reverse playback (trick play) in which a play list file may include Uniform Resource Identifiers (URIs) (list of network addresses) that may direct the client to the segmented media files stored on a server, paragraphs [0047], [0167]). It would have been a matter of obvious experimentation to one of ordinary skill in the art at the time of the invention to modify Braness's invention to include wherein: the download server is configured to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein, as taught by Biderman, for the benefit of providing single large file to store media content that can be used by the client for retrieving portion of contents based on the URIs.

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/39852

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

-***-Continued from Previous Supplemental Box-***-
As per claim 18, Braness discloses the computer readable medium of claim 13. However, Braness fails to disclose wherein: the instruction to cause the processor to store include instructions to cause the processor to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein. Biderman discloses wherein: the instruction to cause the processor to store include instructions to cause the processor (processor is configured by a source encoder application stored in the memory in which a user instruction is provided to perform a visual search using the trick play stream, paragraphs [0027], [0074]) to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein (Multiple media files may be stored on the server (download server) in which the URIs may identify a location from which a client can download a supplementary media file and in which media files may be retrieved using the URIs (corresponding list of network addresses) for those files in the play list in which Indexer 440 may create files with a listing of an order for identifiers corresponding to each file created by segmenter 430, paragraphs [0052], [0139], [0144]); and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein (a server provides the play list file 1001 that may contain the two different sets of URLs (identifying stored files) that may allow either 1 x playback or fast forward or reverse playback (trick play) in which a play list file may include Uniform Resource Identifiers (URIs) (list of network addresses) that may direct the client to the segmented media files stored on a server, paragraphs [0047], [0167]). It would have been a matter of obvious experimentation to one of ordinary skill in the art at the time of the invention to modify Braness's invention to include wherein: the instruction to cause the processor to store include instructions to cause the processor to store the files at corresponding network addresses; the playlist identifying the stored files of the selected stream includes a list of the network addresses of the stored files therein; and the playlist identifying the stored files of the trick play stream includes a list of the network addresses of the stored files therein, as taught by Biderman, for the benefit of providing single large file to store media content that can be used by the client for retrieving portion of contents based on the URIs.

Claim 1-18 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 01974AB.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 11/66927	International filing date *(day/month/year)* 22 December 2011 (22.12.2011)	(Earliest) Priority Date *(day/month/year)* 05 January 2011 (05.01.2011)
Applicant DIVX, LLC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

ADAPTIVE BITRATE STREAMING OF MEDIA STORED IN MATROSKA CONTAINER FILES USING HYPERTEXT TRANSFER PROTOCOL

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 11/66927

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

Systems and methods for adaptive bitrate streaming of media stored in Matroska container files utilizing Hypertext Transfer Protocol (HTTP) are disclosed. In one embodiment, a processor requests portions of files from a remote server and retrieves top level index data that identifies EBML container files and describes a maximum bitrate of the alternative streams contained within the EBML container files. The top level index data is parsed to obtain information identifying the EBML container files, requests a portion of at least one of the EBML container files that contains the at least one element that specifies the encoding parameters of the stream contained within the EBML container file, and requests portions of a first EBML container file that includes elements that contain portions of encoded video, where the selection is based upon the measured streaming conditions and the description of the bitrate of the alternative stream contained within the top level data.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 11/66927

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 15/16 (2012.01)
USPC - 709/231
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC: 709/231

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 709/231 | 709/203 | 375/240.28 | 375/E07.011 | 375/E07.154 (keyword limited - see search terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (PGPB, USPT, USOC, EPAB, JPAB); GOOGLE; Google Scholar
Terms: streaming, video, adaptive, server, network, bit, rate, container, frame, block, parse, http, encode, elements, level, layer, cluster, chunk, matroska, xml, ebml.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2010/0189183 A1 (Gu et al.) 29 July 2010 (29.07.2010), entire document, especially abstract, para [0004], [0006], [0008], [0020], [0022], [0024], [0026], [0042], [0046], [0047], [0068].	1-66
Y	US 2007/0168541 A1 (Gupta et al.) 19 July 2007 (19.07.2007), entire document, especially abstract, para [0003], [0004], [0022], [0023], [0028], [0040], [0047], [0055], [0068], [0080], [0083].	1-66
A	US 2007/0083617 A1 (Chakrabarti et al.) 12 April 2007 (12.04.2007), entire document, especially abstract, para [0007], [0010], [0012], [0014], [0024], [0030], [0061], [0078], [0102].	1-66

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
03 April 2012 (03.04.2012)	20 APR 2012
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID J. BAILEY
KAUTH, POMEROY, PECK & BAILEY LLP
2400 E. KATELLA AVE., SUITE 1050
ANAHEIM, CA 92806

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	20 APR 2012

Applicant's or agent's file reference	FOR FURTHER ACTION
01974AB.PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 11/66927	22 December 2011 (22.12.2011)	05 January 2011 (05.01.2011)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06F 15/16 (2012.01)
USPC - 709/231

Applicant DIVX, LLC.

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	03 April 2012 (03.04.2012)	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-66	YES
	Claims	None	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-66	NO
Industrial applicability (IA)	Claims	1-66	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-66 lack an inventive step under PCT Article 33(3) as being obvious over US 2010/0189183 A1 to Gu et al. (hereinafter Gu) in view of US 2007/0168541 A1 to Gupta et al. (hereinafter Gupta).

Regarding claim 1, Gu teaches a playback device configured to perform adaptive bitrate streaming (a multiple bit rate video encoder encodes a plurality of video streams for multiple bit rate video streaming with an objective of providing a more consistent video quality, para [0008]) using a plurality of alternative streams of encoded video packaged within extensible binary markup language (EBML) container files (utilizes the motion information to perform inter-frame coding of the predicted frames of the video content. The encoding can be performed according to a known video encoding standard, such as Windows Media Video format, SMPTE 421-M format, MPEG-x format (e.g., MPEG-1, MPEG-2, or MPEG-4), H.26.times. format (e.g., H.261, H.262, H.263, or H.264), or other format, para [0026]), where each of the plurality of alternative streams is the same source video encoded using different encoding parameters in such a way that each portion of encoded video packed into an element of an EBML container file (source video content is encoded into alternative bit streams at different coding rates and typically stored in the same media file at the server. This then allows the content to be streamed in segments or chunks at varying levels of quality corresponding to different coding rates according to the changing network conditions, para [0004]) commences with an intra frame starting a closed Group of Pictures (GOP) and each of the EBML container files includes at least one element that specifies the encoding parameters of the stream contained within the EBML container file (Video streams at intermediate bit rates are encoded at progressively decreasing variable bit rates (subject to decreasing peak and average bit rate constraints), para [0008]), the playback device comprising: a processor configured, via a client application, to request portions of files from a remote server (a server 110 (e.g., a server computer system such as a standard HTTP server) provides multimedia content to a client 120 (e.g., a client computer system, such as a laptop or desktop computer, or another type of computing device, such as a PDA or mobile phone) via a network, para [0020]); wherein the client application further configures the processor to: retrieve top level index data that identifies a plurality of EBML container files and describes at least a maximum bitrate of the alternative streams contained within the EBML container files (top MBR video stream (generally having highest overall bit rate), the video encoder 200 encodes the video stream with a varying bit rate constrained to fall under a specified peak bit rate while satisfying a specified average bit rate. For the bottom MBR stream (generally having the lowest bit rate of the set), the video encoder uses a constant chunk rate approach. In the context of the multiple bit rate video streaming system, the term chunk refers to a group of pictures (GOP) into which the video stream are segmented, para [0042]); request a portion of at least one of the EBML container files that contains the at least one element that specifies the encoding parameters of the stream contained within the EBML container file (divides video of a multimedia program into multiple streaming segments, and contains a number of compressed bit streams representing the video segments at various bit rates, para [0020]); retrieve an index that references each element containing portions of encoded video within at least one of the EBML container files (the indexed file for multi bit rate streaming can be used by standard HTTP servers to serve multimedia content at multiple bit rates with bit rate selection (rate control) being performed client-side (e.g., exclusively client-side). Clients can perform rate control by first obtaining index information from the server describing the various bit rates available for streaming segments of a program, para [0022]); utilize the index to request portions of a first EBML container file that includes elements that contain portions of encoded video (divided into temporal chunks called streaming segments (self-contained units). The server stores each streaming segment at one or more bit rates (e.g., each streaming segment--bit rate combination is a separate streaming segment encoding). Each streaming segment includes one or more available bit rate encodings for a specific track, para [0024]); receive and buffer the requested elements (Based on the index information, and possibly other information (e.g., network bandwidth, buffer information, etc.), the client can decide which bit rate streaming segments to download from the server to provide a desired user experience, para [0022]); decode the encoded video contained within the buffered elements utilizing the encoding parameters (the video streams at the multiple bit rates can all be decoded and scaled to this same final display resolution in order to achieve a glitch free video presentation, para [0006]). Gu does not expressly teach parse the top level index data to obtain information identifying the plurality of EBML container files; measure current streaming conditions; and select another of the EBML container files from which to retrieve elements containing portions of encoded video for decoding, where the selection is based upon the measured streaming conditions and the description of the bitrate of the alternative stream contained within the top level data. However Gupta, in an analogous art, teaches parse the top level index data to obtain information identifying the plurality of EBML container files (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]); measure current streaming conditions (the server 110 can measure the time between client reads of successive 64 kB chunks of content. This is a reasonable measurement of client 105 throughput because the standard internet networking architecture (routers, switches, etc.) have very small

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box No. V.2. Citations and explanations.

Claim 1 (continued): buffers, and thus, the rate at which the client is reading can be estimated in this way. The amount of network buffering may also be able to be determined by keeping statistics and probing each client's destination network or sub-net. Other factors that affect client networking speed (such as the required retransmission of TCP/IP network packets) can be known, measured, and accounted for as well, to give a more accurate estimation of client read speed, para [0080]); and select another of the EBML container files from which to retrieve elements containing portions of encoded video for decoding, where the selection is based upon the measured streaming conditions and the description of the bitrate of the alternative stream contained within the top level data (Once the sending rate is adjusted 1060, the server 110 returns to selecting 1020 the next portion of content, modifying 1030 the content if necessary, and writing 1040 the portion to output. Following the writing 1040 step, the server 110 next determines 1070 whether more instructions apply to the requested media content. If the request includes more instructions, steps 1020-1040 repeat according to the next instruction. Once all instructions are processed and the altered media shot is formed from the selected frames, the server 110 serves 1080 any remaining portion of the combined media shot to the client , para [0083]). It would have been obvious to one skilled in the art to combine the teachings of Gu with those of Gupta in order to more efficiently adapt to multiple streaming bit rates in the video playback system of Gu (see Gupta para [0003]-[0004]).

Regarding claim 2, Gu further teaches wherein: each of the EBML container files comprises a plurality of Cluster elements, where each Cluster element contains a portion of encoded video (term chunk refers to a group of pictures (GOP) into which the video stream are segmented, and define the level of granularity at which the video streaming system may switch playing individual segments between video streams. The constant chunk rate approach enables the video streaming system to guarantee predictability of streaming, para [0042]); and the portion of encoded video in each of the Cluster elements commences with an intra frame and includes at least one closed group of pictures (video encoder then performs intra-frame coding of reference frames of the video content, and utilizes the motion information to perform inter-frame coding of the predicted frames of the video content, para [0026]).

Regarding claim 3, Gu further teaches wherein the portions of encoded video in each of the Cluster elements have the same duration (constant chunk rate approach enables the video streaming system to guarantee predictability of streaming, in that when the lowest bit rate or quality video stream is streamed, the client will receive the chunk amount of pictures at the constant rate so as to maintain minimum quality continuous playing of the video, para [0042]).

Regarding claim 4, Gupta further teaches wherein the portions of encoded video in each of the Cluster elements have a 2 second duration (request also includes a time range for each shot, specified as the starting time (e.g., in seconds into the content) and length (e.g., in seconds). For example, for shot 1, the starting time is 10 seconds (begin=10) and the length is 8 seconds (len=8). The request also includes an edit list that refers to a list of instructions for interleaving the four streams from shots 1-4, such that the new piece of content includes the video of each of shots 1-3 and the audio of shot, para [0055]).

Regarding claim 5, Gu further teaches wherein each Cluster element contains a time code and each encoded frame of the portion of encoded video contained within the Cluster element is contained within a separate BlockGroup element (Between marked boundaries of a video sequence (sequence mark-in and sequence mark-out positions), the MBR encoding process 300 further determines a total number of group of pictures segments in which to divide the video sequence within user-specified constraints (such as a specified average GOP length and maximum allowed GOP length within a scene) and sets boundaries of each group of pictures, para [0046]).

Regarding claim 6, Gu further teaches wherein the first BlockGroup element in the Cluster element contains the intra frame (MBR engine controls the video encoder to produce an encoding of the video stream to meet the constant chunk rate constraint, which helps guarantee client side predictability for playing the streamed video. In intermediate video streams, the MBR engine causes the video encoder to encode the source video with encoding parameters to produce the video stream a variable bit rate falling within maximal peak and average bit rate constraints for the respective intermediate stream, para [0047]).

Regarding claim 7, Gupta further teaches wherein the first BlockGroup element contains a Block element, which specifies the time code attribute of the intra frame relative to the time code of the Cluster element (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks, para [0022]).

Regarding claim 8, Gu further teaches wherein each of the alternative streams of encoded video is encoded at a different maximum bitrate (source video content is encoded into alternative bit streams at different coding rates and typically stored in the same media file at the server. This then allows the content to be streamed in segments or chunks at varying levels of quality corresponding to different coding rates according to the changing network conditions, para [0004]).

Regarding claim 9, Gupta further teaches wherein at least two of the alternative streams of encoded video are encoded at the same display aspect ratio, but with different resolutions using different sample aspect ratios (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 10, Gupta further teaches wherein the at least one element in each of the EBML container files that specifies the encoding parameters of the stream contained within the EBML container file specifies the frame height, frame width and sample aspect ratio of the video stream contained within the EBML container file (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box No. V.2. Citations and explanations.

Regarding claim 11, Gupta further teaches wherein the client application configures the processor to set the frame height, frame width, and sample aspect ratio prior to commencing the decoding of encoded video contained within buffered elements from one of the EBML container files (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 12, Gu further teaches wherein at least two of the alternative streams of encoded video are encoded at different frame rates (source video content is encoded into alternative bit streams at different coding rates and typically stored in the same media file at the server. This then allows the content to be streamed in segments or chunks at varying levels of quality corresponding to different coding rates according to the changing network conditions, para [0004]).

Regarding claim 13, Gupta further teaches wherein the at least one element in each of the EBML container files that specifies the encoding parameters of the stream contained within the EBML container file specifies the frame rate of the video stream contained within the EBML container file (In addition, the server 110 stores the relevant header and footer information, such as video resolution and frame rate, byte range of the portion of the file that is being composed, and other file format specific information, para [0040]).

Regarding claim 14, Gupta further teaches wherein the client application configures the processor to set the frame rate prior to commencing the decoding of encoded video contained within buffered elements from one of the EBML container files (In addition, the server 110 stores the relevant header and footer information, such as video resolution and frame rate, byte range of the portion of the file that is being composed, and other file format specific information, para [0040]).

Regarding claim 15, Gu further teaches wherein the client application configures the playback device to request portions of files from remote servers via Hypertext Transfer Protocol (HTTP) byte range requests (the indexed file for multi bit rate streaming can be used by standard HTTP servers to serve multimedia content at multiple bit rates with bit rate selection (rate control) being performed client-side (e.g., exclusively client-side). Clients can perform rate control by first obtaining index information from the server describing the various bit rates available for streaming segments of a program, para [0022]).

Regarding claim 16, Gupta further teaches wherein the top level index data is SMIL data and the information that identifies the plurality of EBML container files is a plurality of Universal Resource Indicators that identify the location of each of the EBML container files (instructions are converted into a request from the client for the edited content, for example in the form of a URL as described in conjunction with FIGS. 4A-C, which is sent to the server, para [0068]).

Regarding claim 17, Gu further teaches wherein the SMIL data specifies the maximum bitrate of the encoded stream contained within the EBML container file identified by each of the URLs (source video content is encoded into alternative bit streams at different coding rates and typically stored in the same media file at the server. This then allows the content to be streamed in segments or chunks at varying levels of quality corresponding to different coding rates according to the changing network conditions, para [0004]).

Regarding claim 18, Gupta further teaches wherein: the index that references each of the elements containing portions of the encoded stream within the EBML container file is located within at least one element of the EBML container file (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]); the SMIL file specifies the portions of the EBML container file that contain the elements that contain the encoding parameters (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]); the client application further configures the processor to: parse the SMIL file to identify the portions of the EBML container file that contain the elements that contain the encoding parameters; and request the portions of the EBML container file that contain the elements that contain the encoding parameters (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]).

Regarding claim 19, Gupta further teaches wherein: each EBML container file includes at least one element containing an index that references each element containing portions of encoded video within the EBML container file; and the client application configures the processor to retrieve the index that references each element containing portions of encoded video within an EBML container file by requesting the portion of the EBML container file that includes the at least one element containing the index (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]).

Regarding claim 20, Gupta further teaches wherein the index is located within a Cues element within the EBML container file (computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index 130, which can be queried using a content identifier, para [0022]).

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of:
Box No. V.2. Citations and explanations.

Regarding claim 21, Gupta further teaches wherein the Cues element includes a plurality of CuePoint elements that include a time attribute and point to the location of each element containing a portion of encoded video within the EBML file (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]).

Regarding claim 22, Gupta further teaches wherein the client application configures the processor to: search for the location of an element containing a specific portion of encoded video within the EBML file using the time attributes of the CuePoint elements within the index; and request a portion of the EBML file including at least the element identified using the CuePoint elements (computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index 130, which can be queried using a content identifier, para [0022]).

Regarding claim 23, Gupta further teaches wherein the encoding parameters utilized to decode the encoded video include at least one encoding parameter selected from the group consisting of frame rate, frame height, frame width, sample aspect ratio, maximum bitrate, and minimum buffer size (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 24, Gupta further teaches wherein the client application configures the processor to measure the current streaming conditions by measuring the time taken to receive requested elements from the time at which the elements were requested (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]).

Regarding claim 25, Gu further teaches wherein: the client application configures the processor to initially request a portion of a first EBML container file containing at least one element that specifies the encoding parameters of the stream contained within the first EBML container file (a server 110 (e.g., a server computer system such as a standard HTTP server) provides multimedia content to a client 120 (e.g., a client computer system, such as a laptop or desktop computer, or another type of computing device, such as a PDA or mobile phone) via a network, para [0020]); and the client application further configures the processor to request a portion of a second EBML container file containing at least one element that specifies the encoding parameters of the stream contained within the second EBML container file, when the client application selects to retrieve elements containing portions of encoded video for decoding from the second EBML container file based upon the measured streaming conditions and the description of the bitrate of the alternative stream contained within the top level index (divides video of a multimedia program into multiple streaming segments, and contains a number of compressed bit streams representing the video segments at various bit rates, para [0020]).

Regarding claim 26, Gu further teaches wherein the playback device is further configured to perform adaptive bitrate streaming using an EBML container file that contains a trick play track (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

Regarding claim 27, Gu further teaches wherein the client application configures the processor to select the EBML container file containing the trick play track as the EBML container file from which to retrieve elements containing portions of encoded video in response to a user instruction (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

Regarding claim 28, Gu further teaches wherein the playback device is further configured to perform adaptive streaming using at least one EBML container file containing a track of encoded audio (a multiple bit rate video encoder encodes a plurality of video streams for multiple bit rate video streaming with an objective of providing a more consistent video quality, para [0008]).

Regarding claim 29, Gu further teaches wherein the client application configures the processor to retrieve and decode encoded audio from one of the at least one EBML container files containing an audio track and to synchronize the decoded audio with the decoded video (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box No. V.2. Citations and explanations.

Regarding claim 30, Gu further teaches wherein each of the EBML container files includes elements containing at least one track of encoded audio multiplexed with the encoded video (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

Regarding claim 31, Gu further teaches wherein the client application is configured to: retrieve portions of the EBML file containing elements that include portions of one of the tracks of encoded audio (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]); decode the retrieved encoded audio; and synchronize the decoded audio and the decoded video (For audio, the input device(s) 650 may be a sound card or similar device that accepts audio input in analog or digital form, or a CD-ROM reader that provides audio samples to the computing environment, para [0068]).

Regarding claim 32, Gu further teaches wherein the playback device is further configured to perform adaptive streaming using at least one EBML container file containing a subtitle track (a multiple bit rate video encoder encodes a plurality of video streams for multiple bit rate video streaming with an objective of providing a more consistent video quality, para [0008]).

Regarding claim 33, Gupta further teaches wherein the client application configures the processor to: subtitle track; retrieve subtitles from one of the at least one EBML container files containing a synchronize the subtitle with the decoded video (This process ensures that the total duration of video and audio content is identical in each stream. Another example of data interleaving is mixing a text or metadata stream, e.g., closed captioning or promotional data, with an existing audio and/or video stream, para [0047]); and overlay the subtitle over the decoded video (may include other data associated with the video content such as program guide information, metadata, and closed captioning text, para [0023]).

Regarding claim 34, Gupta further teaches wherein each of the EBML container files includes elements containing at least one subtitle track multiplexed with the encoded video (This process ensures that the total duration of video and audio content is identical in each stream. Another example of data interleaving is mixing a text or metadata stream, e.g., closed captioning or promotional data, with an existing audio and/or video stream, para [0047]).

Regarding claim 35, Gupta further teaches wherein the client application is configured to: retrieve portions of the EBML file containing elements that include portions of one of the subtitle tracks (This process ensures that the total duration of video and audio content is identical in each stream. Another example of data interleaving is mixing a text or metadata stream, e.g., closed captioning or promotional data, with an existing audio and/or video stream, para [0047]); synchronize the subtitles with the decoded video; and overlay the subtitles on the decoded video (may include other data associated with the video content such as program guide information, metadata, and closed captioning text, para [0023]).

Regarding claim 36, Gu teaches a method of performing adaptive bitrate streaming of media on a playback device (a multiple bit rate video encoder encodes a plurality of video streams for multiple bit rate video streaming with an objective of providing a more consistent video quality, para [0008]) using a plurality of alternative streams of encoded video packaged within extensible binary markup language (EBML) container files (utilizes the motion information to perform inter-frame coding of the predicted frames of the video content. The encoding can be performed according to a known video encoding standard, such as Windows Media Video format, SMPTE 421-M format, MPEG-x format (e.g., MPEG-1, MPEG-2, or MPEG-4), H.26.times. format (e.g., H.261, H.262, H.263, or H.264), or other format, para [0026]), where each of the alternative streams of video is the same source video encoded using different encoding parameters in such a way that each portion of encoded video packed into an element of an EBML container file (source video content is encoded into alternative bit streams at different coding rates and typically stored in the same media file at the server. This then allows the content to be streamed in segments or chunks at varying levels of quality corresponding to different coding rates according to the changing network conditions, para [0004]) commences with an intra frame starting a closed Group of Pictures (GOP) and each of the EBML container files includes at least one element that specifies the encoding parameters of the stream contained within the EBML container file (Video streams at intermediate bit rates are encoded at progressively decreasing variable bit rates (subject to decreasing peak and average bit rate constraints), para [0008]), the method comprising: retrieving top level index data that identifies each of the plurality of EBML container files and describes at least the maximum bitrate of each of the alternative streams contained within the EBML container files (generally having highest overall bit rate), the video encoder 200 encodes the video stream with a varying bit rate constrained to fall under a specified peak bit rate while satisfying a specified average bit rate. For the bottom MBR stream (generally having the lowest bit rate of the set), the video encoder uses a constant chunk rate approach. In the context of the multiple bit rate video streaming system, the term chunk refers to a group of pictures (GOP) into which the video stream are segmented, para [0042]); requesting a portion of at least one of the EBML container files that contains the at least one element that specifies the encoding parameters of the stream contained within the EBML container file (divides video of a multimedia program into multiple streaming segments, and contains a number of compressed bit streams representing the video segments at various bit rates, para [0020]); retrieving an index that references each element containing portions of encoded video within at least one of the EBML container files (the indexed file for multi bit rate streaming can be used by standard HTTP servers to serve multimedia content at multiple bit rates with bit rate selection (rate control) being performed client-side (e.g., exclusively client-side). Clients can perform rate control by first obtaining index information from the server describing the various bit rates available for streaming segments of a program, para [0022]); utilizing the index to request portions of a first EBML container file that includes elements that contain portions of encoded video (divided into temporal chunks called streaming segments (self-contained units). The server stores each

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box No. V.2. Citations and explanations.

Claim 36 (continued): streaming segment at one or more bit rates (e.g., each streaming segment--bit rate combination is a separate streaming segment encoding). Each streaming segment includes one or more available bit rate encodings for a specific track, para [0024]); receiving and buffering the requested elements (Based on the index information, and possibly other information (e.g., network bandwidth, buffer information, etc.), the client can decide which bit rate streaming segments to download from the server to provide a desired user experience, para [0022]); decoding the encoded video contained within the buffered elements utilizing the encoding parameters (the video streams at the multiple bit rates can all be decoded and scaled to this same final display resolution in order to achieve a glitch free video presentation, para [0006]). Gu does not expressly teach parsing the top level index data to obtain information identifying the plurality of EBML container files; measuring current streaming conditions; and selecting another of the EBML container files from which to retrieve elements containing portions of encoded video for decoding, where the selection is based upon the measured streaming conditions and the description of the bitrate of the alternative stream contained within the top level index data. However Gupta, in an analogous art, teaches parsing the top level index data to obtain information identifying the plurality of EBML container files (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]); measuring current streaming conditions (the server 110 can measure the time between client reads of successive 64 kB chunks of content. This is a reasonable measurement of client 105 throughput because the standard internet networking architecture (routers, switches, etc.) have very small buffers, and thus, the rate at which the client is reading can be estimated in this way. The amount of network buffering may also be able to be determined by keeping statistics and probing each client's destination network or sub-net. Other factors that affect client networking speed (such as the required retransmission of TCP/IP network packets) can be known, measured, and accounted for as well, to give a more accurate estimation of client read speed, para [0080]); and selecting another of the EBML container files from which to retrieve elements containing portions of encoded video for decoding, where the selection is based upon the measured streaming conditions and the description of the bitrate of the alternative stream contained within the top level index data (Once the sending rate is adjusted 1060, the server 110 returns to selecting 1020 the next portion of content, modifying 1030 the content if necessary, and writing 1040 the portion to output. Following the writing 1040 step, the server 110 next determines 1070 whether more instructions apply to the requested media content. If the request includes more instructions, steps 1020-1040 repeat according to the next instruction. Once all instructions are processed and the altered media shot is formed from the selected frames, the server 110 serves 1080 any remaining portion of the combined media shot to the client , para [0083]). It would have been obvious to one skilled in the art to combine the teachings of Gu with those of Gupta in order to more efficiently adapt to multiple streaming bit rates in the video playback system of Gu (see Gupta para [0003]-[0004]).

Regarding claim 37, Gu teaches a source encoder configured to encode source video (a multiple bit rate video encoder encodes a plurality of video streams for multiple bit rate video streaming with an objective of providing a more consistent video quality, para [0008]) as a plurality of alternative video streams packed in container files , where the container files are extensible binary markup language (EBML) files, the source encoder comprising:a processor configured via a source encoding application to ingest at least one multimedia file containing a source video (utilizes the motion information to perform inter-frame coding of the predicted frames of the video content. The encoding can be performed according to a known video encoding standard, such as Windows Media Video format, SMPTE 421-M format, MPEG-x format (e.g., MPEG-1, MPEG-2, or MPEG-4), H.26.times. format (e.g., H.261, H.262, H.263, or H.264), or other format, para [0026]); wherein the source encoding application further configures the processor to: select a portion of the source video (source video content is encoded into alternative bit streams at different coding rates and typically stored in the same media file at the server. This then allows the content to be streamed in segments or chunks at varying levels of quality corresponding to different coding rates according to the changing network conditions, para [0004]); transcode the selected portion of the source video into a plurality of alternative portions of encoded video, where each alternative portion is encoded using a different set of encoding parameters and commences with an intra frame starting a closed Group of Pictures (GOP) (Video streams at intermediate bit rates are encoded at progressively decreasing variable bit rates (subject to decreasing peak and average bit rate constraints), para [0008]); write each of the alternative portions of encoded video to an element of a different EBML container file, where each element is located within an EBML container file that also includes another element that indicates the encoding parameters used to encode the alternative portion of encoded video (a server 110 (e.g., a server computer system such as a standard HTTP server) provides multimedia content to a client 120 (e.g., a client computer system, such as a laptop or desktop computer, or another type of computing device, such as a PDA or mobile phone) via a network, para [0020]). Gu does not expressly teach add an entry to at least one index that identifies the location of the element containing one of the alternative portions of encoded video within each of the EBML container files. However Gupta, in an analogous art, teaches add an entry to at least one index that identifies the location of the element containing one of the alternative portions of encoded video within each of the EBML container files (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]). It would have been obvious to one skilled in the art to combine the teachings of Gu with those of Gupta in order to more efficiently adapt to multiple streaming bit rates in the video playback system of Gu (see Gupta para [0003]-[0004]).

Regarding claim 38, Gu further teaches wherein transcoding a selected portion of the source video further comprises transcoding the selected portion into at least one closed group of pictures (term chunk refers to a group of pictures (GOP) into which the video stream are segmented, and define the level of granularity at which the video streaming system may switch playing individual segments between video streams. The constant chunk rate approach enables the video streaming system to guarantee predictability of streaming, para [0042]);

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box No. V.2. Citations and explanations.

Claim 38 (continued): and the portion of encoded video in each of the Cluster elements commences with an intra frame and includes at least one closed group of pictures (video encoder then performs intra-frame coding of reference frames of the video content, and utilizes the motion information to perform inter-frame coding of the predicted frames of the video content, para [0026]).

Regarding claim 39, Gu further teaches wherein the portion of source video is selected based upon the duration of the selected portion of source video (constant chunk rate approach enables the video streaming system to guarantee predictability of streaming, in that when the lowest bit rate or quality video stream is streamed, the client will receive the chunk amount of pictures at the constant rate so as to maintain minimum quality continuous playing of the video, para [0042]).

Regarding claim 40, Gupta further teaches wherein the source encoding application configures the processor to select a portion of the source video having a duration of two seconds (request also includes a time range for each shot, specified as the starting time (e.g., in seconds into the content) and length (e.g., in seconds). For example, for shot 1, the starting time is 10 seconds (begin=10) and the length is 8 seconds (len=8). The request also includes an edit list that refers to a list of instructions for interleaving the four streams from shots 1-4, such that the new piece of content includes the video of each of shots 1-3 and the audio of shot, para [0055]).

Regarding claim 41, Gu further teaches wherein each of the alternative portions of encoded video is encoded with a different maximum bitrate (MBR engine controls the video encoder to produce an encoding of the video stream to meet the constant chunk rate constraint, which helps guarantee client side predictability for playing the streamed video. In intermediate video streams, the MBR engine causes the video encoder to encode the source video with encoding parameters to produce the video stream a variable bit rate falling within maximal peak and average bit rate constraints for the respective intermediate stream, para [0047]).

Regarding claim 42, Gupta further teaches wherein at least two of the alternative portions of encoded video are encoded with different resolutions (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 43, Gupta further teaches wherein at least two of the alternative portions of encoded video are encoded with different frame rates (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 44, Gupta further teaches wherein the element of the EBML container file to which each alternative portion of encoded video is written is a Cluster element containing a time code and the portion of encoded video is contained within BlockGroup elements within the Cluster element (In addition, the server 110 stores the relevant header and footer information, such as video resolution and frame rate, byte range of the portion of the file that is being composed, and other file format specific information, para [0040]).

Regarding claim 45, Gu further teaches wherein each encoded frame of the alternative portion of encoded video contained within the Cluster element is contained within a separate BlockGroup element (Between marked boundaries of a video sequence (sequence mark-in and sequence mark-out positions), the MBR encoding process 300 further determines a total number of group of pictures segments in which to divide the video sequence within user-specified constraints (such as a specified average GOP length and maximum allowed GOP length within a scene) and sets boundaries of each group of pictures, para [0046]).

Regarding claim 46, Gu further teaches wherein the first BlockGroup element in the Cluster element contains the IDR frame (MBR engine controls the video encoder to produce an encoding of the video stream to meet the constant chunk rate constraint, which helps guarantee client side predictability for playing the streamed video. In intermediate video streams, the MBR engine causes the video encoder to encode the source video with encoding parameters to produce the video stream a variable bit rate falling within maximal peak and average bit rate constraints for the respective intermediate stream, para [0047]).

Regarding claim 47, Gupta further teaches wherein the first BlockGroup element contains a Block element, which specifies the time code attribute of the IDR frame relative to the time code of the Cluster element (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks, para [0022]).

Regarding claim 48, Gupta further teaches wherein each element to which each of the alternative portions of encoded video is written is assigned the same time code (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks, para [0022]).

Regarding claim 49, Gupta further teaches wherein the source encoding application further configures the processor to create an index for each of the EBML container files (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 50, Gupta further teaches wherein the source encoding application further configures the processor to add the location of the element containing one of the alternative portions of encoded video within each of the EBML container files to the index for the EBML container file (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box No. V.2. Citations and explanations.

Regarding claim 51, Gupta further teaches wherein the source encoding application further configures the processor to pack the index for each EBML container file into the EBML container file (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 52, Gupta further teaches wherein each index comprises a Cues element (computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index 130, which can be queried using a content identifier, para [0022]).

Regarding claim 53, Gupta further teaches wherein each Cues element includes a CuePoint element that points to the location of the element containing one of the alternative portions of encoded video within the EBML file (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]).

Regarding claim 54, Gupta further teaches wherein the source encoding application further configures the processor to create a top level index file that identifies each of the EBML container files (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 55, Gu further teaches wherein the ingested multimedia file also includes source audio (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

Regarding claim 56, Gu further teaches wherein the source encoding application configures the processor to multiplex the audio into each of the EBML container files (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

Regarding claim 57, Gu further teaches wherein the source encoding application configures the processor to write the audio to a separate EBML container file (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

Regarding claim 58, Gu further teaches wherein the source encoding application further configures the processor to transcode at least one of the at least one audio tracks (Video streams at intermediate bit rates are encoded at progressively decreasing variable bit rates (subject to decreasing peak and average bit rate constraints), para [0008]).

Regarding claim 59, Gupta further teaches wherein the ingested multimedia file further comprises subtitles (This process ensures that the total duration of video and audio content is identical in each stream. Another example of data interleaving is mixing a text or metadata stream, e.g., closed captioning or promotional data, with an existing audio and/or video stream, para [0047]).

Regarding claim 60, Gupta further teaches wherein the source encoding application configures the processor to multiplex the subtitles into each of the EBML container files (This process ensures that the total duration of video and audio content is identical in each stream. Another example of data interleaving is mixing a text or metadata stream, e.g., closed captioning or promotional data, with an existing audio and/or video stream, para [0047]).

Regarding claim 61, Gupta further teaches wherein the source encoding application configures the processor to write the subtitles to a separate EBML container file (This process ensures that the total duration of video and audio content is identical in each stream. Another example of data interleaving is mixing a text or metadata stream, e.g., closed captioning or promotional data, with an existing audio and/or video stream, para [0047]).

Regarding claim 62, Gu further teaches wherein the source encoding application further configures the processor to transcode the source video to create a lower frame rate trick play track and to write the trick play track to a separate EBML container file (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/66927

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box No. V.2. Citations and explanations.

Regarding claim 63, Gu further teaches wherein the trick play track is also lower resolution than the source video (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

Regarding claim 64, Gu further teaches wherein the source encoding application further configures the processor to write the element containing a set of encoding parameters in each of the EBMt. container files (Each streaming segment includes one or more available bit rate encodings for a specific track (e.g., a specific audio track, such as an English audio track, or a specific video track) of a program. Clients then determine which bit rate, from the available bit rates (e.g., from the available streaming segment encodings), to download for each streaming segment. For example, a client may obtain a first streaming segment, for a video track, encoded at 250 Kb/sec (kilo-bits per second) (from one or more available streaming segment encodings for the first streaming segment), para [0024]).

Regarding claim 65, Gupta further teaches wherein the set of encoding parameters includes at least one parameter selected from the group consisting of frame rate, frame height, frame width, sample aspect ratio, maximum bitrate, and minimum buffer size (an identifier for the video encoding format and resolution. In this example, the row identifier includes multiple columns to specify the content index 130 data as discussed herein. Alternatively, all data for all chunks of a media file is stored in a single database row, using one or more columns, para [0028]).

Regarding claim 66, Gu teaches a method of encoding source video as a plurality of alternative streams packed in extensible binary markup language (EBML) files using a source encoder (utilizes the motion information to perform inter-frame coding of the predicted frames of the video content. The encoding can be performed according to a known video encoding standard, such as Windows Media Video format, SMPTE 421-M format, MPEG-x format (e.g., MPEG-1, MPEG-2, or MPEG-4), H.26.times. format (e.g., H.261, H.262, H.263, or H.264), or other format, para [0026]), the method comprising: repeatedly selecting a portion of the source video using the source encoder (source video content is encoded into alternative bit streams at different coding rates and typically stored in the same media file at the server. This then allows the content to be streamed in segments or chunks at varying levels of quality corresponding to different coding rates according to the changing network conditions, para [0004]); transcoding the selected portion of the source video into a plurality of alternative portions of encoded video using the source encoder, where each alternative portion is encoded using a different set of encoding parameters and commences with an intra frame starting a closed Group of Pictures (GOP) (Video streams at intermediate bit rates are encoded at progressively decreasing variable bit rates (subject to decreasing peak and average bit rate constraints), para [0008]); writing each of the alternative portions of encoded video to an element of a different EBML container file using the source encoder, where each element is located within an EBML container file that also includes another element containing a set of encoding parameters corresponding to the encoding parameters used to encode the portion of video (a server 110 (e.g., a server computer system such as a standard HTTP server) provides multimedia content to a client 120 (e.g., a client computer system, such as a laptop or desktop computer, or another type of computing device, such as a PDA or mobile phone) via a network, para [0020]). Gu does not expressly teach adding an entry to at least one index that identifies the location of the element containing one of the alternative portions of encoded video within each of the EBML container files. However Gupta, in an analogous art, teaches adding an entry to at least one index that identifies the location of the element containing one of the alternative portions of encoded video within each of the EBML container files (enumerating and assigning each frame a timestamp, parsing the media file headers and footers, and computing format-specific "chunk" boundary points based on the indexable file portions, or chunks. The media content is stored in a source file data storage 125, and data about the media content is stored out-of-band from the media content in a content index, para [0022]). It would have been obvious to one skilled in the art to combine the teachings of Gu with those of Gupta in order to more efficiently adapt to multiple streaming bit rates in the video playback system of Gu (see Gupta para [0003]-[0004]).

Claims 1-66 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 02353AB.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2011/067167	International filing date *(day/month/year)* 23 December 2011	(Earliest) Priority Date *(day/month/year)* 05 January 2011
Applicant DIVX, LLC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☒ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. 1

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

DivX Exhibit 2005
Page 2005 - 389
IPR2020-00558

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/067167

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-28

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

DivX Exhibit 2005
Page 2005 - 390
IPR2020-00558

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/067167

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06T 11/00 (2012.01)
USPC - 345/471
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - G06T 11/00; H04N 5/228, 5/262, 7/00 (2012.01)
USPC - 345/467, 471; 348/222.1, 239, 468

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0303241 A1 (PRIYADARSHI et al) 10 December 2009 (10.12.2009) entire document	1-25
Y	WO 2010/060106 A1 (KOHLI et al) 27 May 2010 (27.05.2010) entire document	1-25
Y	US 2009/0132599 A1 (SOROUSHIAN et al) 21 May 2009 (21.05.2009) entire document	18-23
A	US 2009/0307258 A1 (PRIYADARSHI et al) 10 December 2009 (10.12.2009) entire document	1-25

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 June 2012	02 JUL 2012

Name and mailing address of the ISA/US	Authorized officer:
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

Continuation of Box III.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-25, drawn to a method of playing back encoded media and a playback device, comprising requesting and buffering portions of video from at least one of alternative streams using a playback device; requesting information indicative of a font utilized by a font-rendering engine to render text from a selected subtitle stream; device; downloading at least one font file when the font is not present on the playback requesting and buffering at least a portion of the selected subtitle stream; decoding the buffered portions of video using a decoder on the playback device; rendering the portions of the subtitle stream corresponding to the buffered portion of video using a font-rendering engine configured by the at least one downloaded font file; and performing synchronized playback of the decoded video and rendered subtitles using the playback device.

Group II, claims 26-43, drawn to method of encoding source media and a source encoder, comprising: selecting a portion of the source media using a source encoder; transcoding the selected portion of the source media into a plurality of alternative portions of encoded video using the source encoder, where each alternative portion is encoded using a different set of encoding parameters and commences with an intra frame at the start of a closed group of pictures (GOP); writing each of the alternative portions of encoded video to a separate container file using the source encoder; writing a subtitle stream segment from each subtitle track corresponding to the selected portion of the source media to a separate container file using the source encoder; and associating a font file with at least one of the container files containing subtitle stream segments.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: requesting and buffering portions of video from at least one of alternative streams using a playback device; requesting information indicative of a font utilized by a font-rendering engine to render text from a selected subtitle stream; device; downloading at least one font file when the font is not present on the playback requesting and buffering at least a portion of the selected subtitle stream; decoding the buffered portions of video using a decoder on the playback device; rendering the portions of the subtitle stream corresponding to the buffered portion of video using a font-rendering engine configured by the at least one downloaded font file; and performing synchronized playback of the decoded video and rendered subtitles using the playback device as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: selecting a portion of the source media using a source encoder; transcoding the selected portion of the source media into a plurality of alternative portions of encoded video using the source encoder, where each alternative portion is encoded using a different set of encoding parameters and commences with an intra frame at the start of a closed group of pictures (GOP); writing each of the alternative portions of encoded video to a separate container file using the source encoder; writing a subtitle stream segment from each subtitle track corresponding to the selected portion of the source media to a separate container file using the source encoder; and associating a font file with at least one of the container files containing subtitle stream segments as claimed therein is not present in the invention of Groups I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of encoding media including at least one subtitle track, where the media is encoded as a plurality of alternative video streams and at least one subtitle stream, using a source encoder, this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of US 2009/0307258 A1 (PRIYARDARSHI et al) 10 December 2009 (10.12.2009) paragraphs [0021], [0048], [0067], [0069], claim 20.

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID BAILEY
KAUTH, POMEROY, PECK & BAILEY LLP
2400 E. KATELLA AVE., SUITE 1050
ANAHEIM, CA 92806

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	02 JUL 2012
Applicant's or agent's file reference 02353AB.PCT	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2011/067167	23 December 2011	05 January 2011

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06T 11/00 (2012.01)
USPC - 345/471

Applicant DIVX, LLC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	19 June 2012	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/067167

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/067167

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the appicable time limit:

   ☐ paid additional fees

   ☐ paid additional fees under protest and, where applicable, the protest fee

   ☐ paid additional fees under protest but the applicable protest fee was not paid

   ☒ not paid additional fees

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

   ☐ complied with

   ☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-25, drawn to a method of playing back encoded media and a playback device, comprising requesting and buffering portions of video from at least one of alternative streams using a playback device; requesting information indicative of a font utilized by a font-rendering engine to render text from a selected subtitle stream; device; downloading at least one font file when the font is not present on the playback requesting and buffering at least a portion of the selected subtitle stream; decoding the buffered portions of video using a decoder on the playback device; rendering the portions of the subtitle stream corresponding to the buffered portion of video using a font-rendering engine configured by the at least one downloaded font file; and performing synchronized playback of the decoded video and rendered subtitles using the playback device.

Group II, claims 26-43, drawn to method of encoding source media and a source encoder, comprising: selecting a portion of the source media using a source encoder; transcoding the selected portion of the source media into a plurality of alternative portions of encoded video using the source encoder, where each alternative portion is encoded using a different set of encoding parameters and commences with an intra frame at the start of a closed group of pictures (GOP); writing each of the alternative portions of encoded video to a separate container file using the source encoder; writing a subtitle stream segment from each subtitle track corresponding to the selected portion of the source media to a separate container file using the source encoder; and associating a font file with at least one of the container files containing subtitle stream segments.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: requesting and buffering portions of video from at least one of alternative streams using a playback device; requesting information indicative of a font utilized by a font-rendering engine to render text from a selected subtitle stream; device; downloading at least one font file when the font is not present on the playback requesting and buffering at least a portion of the selected subtitle stream; decoding the buffered portions of video using a decoder on the playback device; rendering the portions of the subtitle stream corresponding to the buffered portion of video using a font-rendering engine configured by the at least one downloaded font file; and performing synchronized playback of the decoded video and rendered subtitles using the playback device as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: selecting a portion of the source media using a source encoder; transcoding the selected portion of the source media into a plurality of alternative portions of encoded video using the source encoder, where each alternative portion is encoded using a different set of encoding parameters and commences with an intra frame at the start of a closed group of pictures (GOP); writing each of the alternative portions of encoded video to a separate container file using the source encoder; writing a subtitle stream segment from each subtitle track corresponding to the selected portion of the source media to a separate container file using the source encoder; and associating a font file with at least one of the container files containing subtitle stream segments as claimed therein is not present in the invention of Groups I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of encoding media including at least one subtitle track, where the media is encoded as a plurality of alternative video streams and at least one subtitle stream, using a source encoder, this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of US 2009/0307258 A1 (PRIYARDARSHI et al) 10 December 2009 (10.12.2009) paragraphs [0021], [0048], [0067], [0069], claim 20.

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

   ☐ all parts

   ☒ the parts relating to claims Nos. 1-25

Form PCT/ISA/237 (Box No. IV) (July 2011)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/067167

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-25	YES
	Claims	None	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-25	NO
Industrial applicability (IA)	Claims	1-25	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-17 and 24-25 lack an inventive step under PCT Article 33(3) as being obvious over Priyadarshi et al. (US 2009/0303241 A1; hereinafter Priyadarshi) in view of Kohli et al. (WO 2010/060106 A1; hereinafter Kohli).

Regarding claim 1, Priyadarshi discloses a method of playing back encoded media (Fig. 1 and Paragraphs [0008], [0027] and [0030]; the invention is to a playback system that displays multimedia files with rendered font and text subtitles that match the video file. The multimedia presentation is analyzed by an encoder/decoder to determine the unique character for each movie/video), where the media is encoded as a stream and at least one subtitle stream (Fig. 6, Paragraphs [0027], [0030] and [0036]; the stream of data includes encoded movie stream data and subtitle information that corresponds to the movie data. With the subtitle information being several font files (31, 32, 33) that correspond to the over time stream of video data), the method comprising: requesting and buffering portions of video from at least one stream using a playback device (Fig. 4 and Paragraph [0031]; video textual elements are sent to a character buffer for playback processing); requesting information indicative of a font utilized by a font-rendering engine to render text from a selected subtitle stream (Fig. 6 and Paragraphs [0021], [0026]-[0027] and [0036]; font files are used by a rendering module (font-rendering engine) to render the text or characters displayed with the movie stream); downloading at least one font file when the font is not present on the playback device (Paragraphs [0020], [0035] and [0038]; the necessary font files can be downloaded as an attachment); requesting and buffering at least a portion of the selected subtitle stream (Fig. 4 and Paragraph [0031]; video textual elements are sent to a character buffer for playback processing); decoding the buffered portions of video using a decoder on the playback device (Paragraphs [0030]-[0031] and [0033]; the buffered portions can be sent to a decoder for decoding of the text, audio and video portions); rendering the portions of the subtitle stream corresponding to the buffered portion of video using a font-rendering engine configured by the at least one downloaded font file (Fig. 6 and Paragraphs [0021], [0026]-[0027] and [0036]; font files are used by a rendering module (font-rendering engine) to render the text or characters displayed with the movie stream); and performing synchronized playback of the decoded video and rendered subtitles using the playback device (Fig. 6 and Paragraph [0036]; using start and end time code values the font files (31, 32, 33) are associated (synchronized) with their corresponding decoded video presentation timeline segments). Priyadarshi does not disclose wherein the streams are a plurality of alternative streams. However in disclosing a system of streaming media content (Abstract), Kohli teaches streams are a plurality of alternative streams (Figs. 1 and 5 and Paragraphs [0027], [0030] and [0162]; multiple media flow wherein the streams are a plurality of alternative streams directors (alternative streams) can be used to deliver and stream media content to a user device). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the streams are a plurality of alternative streams in the invention of Priyadarshi as taught by Kohli, so the multiple media flow directors can be used to efficiently deliver the media content to a user (Kohli; Paragraph [0162]).

Regarding claim 2, Priyadarshi discloses the method of claim 1, but Priyadarshi does not disclose measuring the current streaming conditions by measuring the time taken to receive requested portions of a stream from the time at which the portions were requested. Kohli teaches measuring the current streaming conditions by measuring the time taken to receive requested portions of a stream from the time at which the portions were requested (Paragraph [0160]; the system measures the delays from streaming to displaying the video and sets the buffer at a setting that covers for these delays). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include measuring the current streaming conditions by measuring the time taken to receive requested portions of a stream from the time at which the portions were requested in the invention of Priyadarshi as taught by Kohli, so the delays can be covered (Kohli; Paragraph [0160]).

Regarding claim 3, Priyadarshi discloses the method of claim 2, but Priyadarshi does not disclose wherein requesting and buffering portions of video from at least one of the alternative streams using a playback device further comprises requesting and buffering portions of video from at least one of the alternative streams based upon the bitrates of the alternative streams and the measured streaming conditions using a playback device. Kohli teaches wherein requesting and buffering portions of video from at least one of the alternative streams using a playback device further comprises requesting and buffering portions of video from at least one of the alternative streams based upon the bitrates of the alternative streams and the measured streaming conditions using a playback device (Paragraphs [0142], [0159]-[0160]; the requested stream can be video from a server at a particular bit rate that suits the clients needs. The requested streams are then buffered to overcome delays as previously disclosed). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein requesting and buffering portions of video from at least one of the alternative streams using a playback device further comprises requesting and buffering portions of video from at least one of the alternative streams based upon the bitrates of the alternative streams and the measured streaming conditions using a playback device in the invention of Priyadarshi as taught by Kohli, so the delays can be covered and a set bit rate file can be sent to the client (Kohli; Paragraphs [0159]-[0160]).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Regarding claim 4, Priyadarshi discloses the method of claim 1, wherein the selected subtitle stream is stored within a container file that includes the font file as an attachment to the container file (Paragraphs [0021] and [0038]; the font files for the subtitles are electronic data files containing a set of representations for displaying characters or symbols where the containers can include an attachment link).

Regarding claim 5, Priyadarshi discloses the method of claim 4, wherein the container file in which the selected subtitle stream is stored includes a separate element containing metadata describing the attached font file (Paragraph [0038] and Claim 11; the font file can include metadata tags in the file such as the description, start time and end time for each attachment).

Regarding claim 6, Priyadarshi discloses the method of claim 5, further comprising determining whether the font file is present on the playback device without downloading the font file by requesting the metadata describing the attached font file from the container file using the playback device (Fig. 6 and Paragraph [0038]; using the description in each multimedia container the system can determine if an attachment font link is/file is necessary for each time period in a movie).

Regarding claim 7, Priyadarshi discloses the method of claim 5, wherein the metadata describing the attached font file includes a description of the font file and the location of the font file within the container file (Fig. 6 and Paragraph [0038]; using the description in each multimedia container the system can determine if an attachment font link is/file is necessary for each time period in a movie).

Regarding claim 8, Priyadarshi discloses the method of claim 1, but Priyadarshi does not disclose wherein the font file is compressed and the method further comprises decompressing the downloaded font file using the playback device. Kohli teaches wherein the font file is compressed and the method further comprises decompressing the downloaded font file using the playback device (Paragraph [0080]; the video information can include compressed and/uncompressed video data and video attributes (font files)). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the font file is compressed and the method further comprises decompressing the downloaded font file using the playback device in the invention of Priyadarshi as taught by Kohli, so space can be conserved (Kohli, Paragraphs [0080]).

Regarding claim 9, Priyadarshi discloses the method of claim 1, but Priyadarshi does not disclose wherein the selected subtitle stream is selected by the playback device in response to a user instruction. However turning on subtitles on a movie is a known practice in the art and would simply be a matter of inventor design choice. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the selected subtitle stream is selected by the playback device in response to a user instruction in the invention of Priyadarshi so users can see corresponding text to videos if necessary or desired.

Regarding claim 10, Priyadarshi discloses the method of claim 1, but Priyadarshi does not disclose displaying a user interface indicative of the estimated time to download the at least one font file using the playback device. However displaying download information such as estimated download time in a media related system is a known practice in the art and the specifics would simply be a matter of inventor design choice. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include displaying a user interface indicative of the estimated time to download the at least one font file using the playback device in the invention of Priyadarshi so users can see how long till their media file is done downloading and plan their time accordingly.

Regarding claim 11, Priyadarshi discloses the method of claim 1, wherein the subtitle stream is encoded as Unicode text (Paragraph [0008]; the fonts/subtitles can be encoded using Unicode encoding).

Regarding claim 12, Priyadarshi discloses the method of claim 1, wherein requesting and buffering at least a portion of the selected subtitle stream comprises downloading and buffering the entire subtitle stream prior to the commencement of playback (Paragraph [0031]; all textual elements (subtitles) can be extracted, buffered and then decoded for playback)

Regarding claim 13, Priyadarshi discloses the method of claim 1, wherein requesting and buffering at least a portion of the selected subtitle stream comprises requesting and buffering segments of the subtitle stream with timing corresponding to the timing of the portions of video requested by the playback device (Fig. 6 and Paragraphs [0033] and [0036]; the font file portions can be segmented to smaller sized segments that correspond to time segments within the overall movie timeline as shown in figure 6).

Regarding claim 14, Priyadarshi discloses the method of claim 13, wherein the font used to render the subtitle track is contained within a plurality of font files and at least one of the plurality of font files corresponds to a segment of the subtitle stream (Fig. 6 and Paragraphs [0033] and [0036]; the font file portions can be segmented to smaller sized segments that correspond to time segments within the overall movie timeline as shown in figure 6), the method further comprising downloading the font file corresponding to a segment of the subtitle stream when the playback device requests the segment of the subtitle stream (Paragraphs [0036] and [0038]; font files corresponding to a particular time can be attached/downloaded as necessary to display subtitles during that time period).

Regarding claim 15, Priyadarshi discloses the method of claim 14, wherein the font used to render the subtitle track is active according to an associated start timecode and end timecode, and the start and end timecodes are independent of the subtitle segment times (Paragraph [0038]; the fonts rendered for each time periods can be downloaded based on font attachment file start and end times).

Regarding claim 16, Priyadarshi discloses the method of claim 15, wherein start and end timecodes for a plurality of font segments overlap, and lead to multiple font segments being utilized for rendering subtitles at a given time (Paragraphs [0036] and [0038]; the video can have multiple font files which are associated with the overall timeline with all the files being attached to the movie based on a corresponding start and end time of the font attachment file).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Regarding claim 17, Priyadarshi discloses the method of claim 1, wherein: the streams and the subtitle stream are stored in separate container files (Paragraphs [0036] and [0038]; the video can have multiple font container files which are associated with the overall timeline with all the files being attached to the movie based on a corresponding start and end time of the font attachment file). Priyadarshi does not disclose wherein requesting portions of a stream further comprising requesting portions of files from remote servers via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device. Kohli teaches wherein requesting portions of a stream further comprising requesting portions of files from remote servers via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device (Paragraphs [0114]-[0115]; the server can be a HTTP server and the client can request content by byte ranges). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein requesting portions of a stream further comprising requesting portions of files from remote servers via Hypertext Transfer Protocol (HTTP) byte range requests using the playback device in the invention of Priyadarshi as taught by Kohli, so the managing device can server the appropriate content to the user (Kohli; Paragraphs [0114]-[0115]).

Regarding claim 24, Priyadarshi discloses the method of claim 1, but Priyadarshi does not disclose retrieving a top level index file using the playback device that identifies the alternative streams and identifies at least one subtitle stream. Kohli teaches retrieving a top level index file using the playback device that identifies the alternative streams and identifies at least one subtitle stream (Paragraph [0041]; the video file format information (which include the subtitle information as previously disclosed) can be stored in a server side index table (top level index file) that can be used to quickly be used to find the associated frame for each new bit rate video stream). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include retrieving a top level index file using the playback device that identifies the alternative streams and identifies at least one subtitle stream in the invention of Priyadarshi as taught by Kohli, so the index can be used to quickly find the associated frame for each new bit rate video stream (Kohli; Paragraph [0041]).

Regarding claim 25, Priyadarshi discloses a playback device configured to playback encoded media (Fig. 1 and Paragraphs [0006], [0027] and [0030]; the invention is to a playback system that displays multimedia files with rendered font and text subtitles that match the video file. The multimedia presentation is analyzed by an encoder/decoder to determine the unique character for each movie/video), where the media is encoded as a stream and at least one subtitle stream (Fig. 6, Paragraphs [0027], [0030] and [0036]; the stream of data includes encoded movie stream data and subtitle information that corresponds to the movie data. With the subtitle information being several font files (31, 32, 33) that correspond to the over time stream of video data), the playback device comprising: a processor configured to request portions of files (Paragraph [0010]; the system includes a processor that is configured to extract/request text data from a multimedia file having audio and video data) wherein the processor is configured to: request and buffer portions of video from at least one of the streams (Fig. 4 and Paragraph [0031]; video textual elements are sent to a character buffer for playback processing); request information indicative of a font utilized by a font-rendering engine to render text from a selected subtitle stream (Fig. 6 and Paragraphs [0021], [0026]-[0027] and [0038]; font files are used by a rendering module (font-rendering engine) to render the text or characters displayed with the movie stream); download at least one font file when the font is not present on the playback device (Paragraphs [0020], [0035] and [0038]; the necessary font files can be downloaded as an attachment); request and buffer at least a portion of the selected subtitle stream (Fig. 4 and Paragraph [0031]; video textual elements are sent to a character buffer for playback processing); decode the buffered portions of video (Paragraphs [0030]-[0031] and [0033]; the buffered portions can be sent to a decoder for decoding of the text, audio and video portions); render the portions of the subtitle stream corresponding to the buffered portion of video using a font-rendering engine configured by the at least one downloaded font file (Fig. 6 and Paragraphs [0021], [0026]-[0027] and [0038]; font files are used by a rendering module (font-rendering engine) to render the text or characters displayed with the movie stream); and perform synchronized playback of the decoded video and rendered subtitles (Fig. 6 and Paragraph [0036]; using start and end time code values the font files (31, 32, 33 - subtitles) are associated (synchronized) with their corresponding decoded video presentation timeline segments). Priyadarshi does not disclose wherein the streams are a plurality of alternative streams; wherein the processor is configured by a client application; wherein the requested portions are from a remote server. However in disclosing a system of streaming media content (Abstract), Kohli teaches wherein the streams are a plurality of alternative streams (Figs. 1 and 5 and Paragraphs [0027], [0030] and [0162]; multiple media flow directors (alternative streams) can be used to deliver and stream media content to a user device); wherein the processor is configured by a client application (Paragraph [0166]; the system can have an input device that receives and sends client commands (client application) to the processor); wherein the requested portions are from a remote server (Paragraphs [0151] and [0173]; the requested code information can be received from a remote server (630)). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the streams are a plurality of alternative streams; wherein the processor is configured by a client application; wherein the requested portions are from a remote server in the invention of Priyadarshi as taught by Kohli, so the multiple media flow directors can be used to efficiently deliver the media content to a user (Kohli; Paragraph [0162]).

Claims 18-23 lack an inventive step under PCT Article 33(3) as being obvious over Priyadarshi et al. (US 2009/0303241 A1; hereinafter Priyadarshi) in view of Kohli et al. (WO 2010/060106 A1; hereinafter Kohli) in further view of Soroushian et al. (US 2009/0132599 A1; hereinafter Soroushian).

Regarding claim 18, Priyadarshi discloses the method of claim 1, but Priyadarshi does not disclose wherein the alternative streams and the subtitle stream are stored in separate Extensible Binary Markup Language (EBML) container files. However in disclosing a playback and distribution system (Abstract), Soroushian teaches wherein the alternative streams and the subtitle stream are stored in separate Extensible Binary Markup Language (EBML) container files (Fig. 9 and Paragraph [0042]; media files (which would include the subtitles) are stored in extensible Binary Meta Language (EBML) elements (containers)). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the alternative streams and the subtitle stream are stored in separate Extensible Binary Markup Language (EBML) container files in the invention of Priyadarshi as taught by Soroushian, so the media file can be easily indexed (Soroushian; Paragraph [0042]).

DivX Exhibit 2005
Page 2005 - 398
IPR2020-00558

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Regarding claim 19, Priyadarshi discloses the method of claim 18, wherein each of the container files comprises a plurality of Cluster elements, where each Cluster element contains a portion of encoded media (Fig. 6 and Paragraphs [0033] and [0036]; the font file portions can be segmented to smaller sized segments (clusters) that correspond to time segments within the overall movie timeline as shown in figure 6). But Priyadarshi does not disclose wherein the container files are EBML container files. However in disclosing a playback and distribution system (Abstract), Soroushian teaches wherein the container files are EBML container files. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the container files are EBML container files in the invention of Priyadarshi as taught by Soroushian, so the media file can be easily indexed (Soroushian; Paragraph [0042]).

Regarding claim 20, Priyadarshi discloses the method of claim 19, wherein the portions of encoded media in each of the Cluster elements have the same duration (Paragraph [0037]; the font files can all be of an approximate equal size and duration).

Regarding claim 21, Priyadarshi discloses the method of claim 20, but Priyadarshi does not disclose wherein the portions of encoded media in each of the Cluster elements have a 2 second duration. However setting a segment to a particular duration is disclosed by Priyadarshi as disclosed in claim 20 and specifically setting the duration to 2 seconds would simply be a matter of inventor design choice. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the portions of encoded media in each of the Cluster elements have a 2 second duration in the invention of Priyadarshi, so the font files can all span an approximately equal amount of time within a movie (Priyadarshi; Paragraph [0037]).

Regarding claim 22, Priyadarshi discloses the method of claim 18, wherein the container file containing the selected subtitle stream includes at least one font file as an attachment to the container file (Paragraphs [0021] and [0038]; the font files for the subtitles are electronic data files containing a set of representations for displaying characters or symbols where the containers can include an attachment link). But Priyadarshi does not disclose wherein the container files are EBML container files. However in disclosing a playback and distribution system (Abstract), Soroushian teaches wherein the container files are EBML container files. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the container files are EBML container files in the invention of Priyadarshi as taught by Soroushian, so the media file can be easily indexed (Soroushian; Paragraph [0042]).

Regarding claim 23, Priyadarshi discloses the method of claim 22, but Priyadarshi does not disclose wherein the at least one font file attached to the container file are compressed. Kohli teaches wherein the at least one font file attached to the container file are compressed (Paragraph [0080]; the video information can include compressed and/uncompressed video data and video attributes (font files)). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the at least one font file attached to the container file are compressed in the invention of Priyadarshi as taught by Kohli, so space can be conserved (Kohli; Paragraphs [0080]).

Claims 1-25 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference D1:02359AB.PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2011/068276	International filing date *(day/month/year)* 31 December 2011	(Earliest) Priority Date *(day/month/year)* 01 September 2011
Applicant DIVX, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. 1A

   ☐ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☒ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/068276

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04L 9/18 (2013.01)
USPC - 380/255
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - H04L 9/00, 9/08, 9/14, 9/18, (2013.01)
USPC - 380/1, 45, 255, 269, 277, 281

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC- H04L 9/00, 9/08, 9/14, 9/18, (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Orbit, Google Patents, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2009/0290706 A1 (AMINI et al) 26 November 2009 (26.11.2009) entire document	1, 2, 14, 15, 27, 28 ---- 3-13, 16-26, 29-105
Y	WO 2011/103364 A1 (THORWIRTH) 25 August 2011 (25.08.2011) entire document	4-13, 17-26, 29-105
Y	US 2009/0328228 A1 (SCHNELL) 31 December 2009 (31.12.2009) entire document	3, 10-13, 16, 23-26, 29-66, 68, 70-83, 85, 87-102, 104
Y	US 2009/0132721 A1 (SOROUSHIAN et al) 21 May 2009 (21.05.2009) entire document	9-13, 22-26, 34, 35, 41-48, 54, 55, 59-66, 68, 75-83, 85, 94-102, 104

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 June 2013	08 JUL 2013
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID J. BAILEY
KAUTH, POMEROY, PECK & BAILEY LLP
2400 E. KATELLA, SUITE 1050
ANAHEIM, CA 92806

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	08 JUL 2013
Applicant's or agent's file reference D1:02359AB.PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2011/068276	31 December 2011	01 September 2011

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04L 9/18 (2013.01)
USPC - 380/255

Applicant DIVX, LLC

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	19 June 2013	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	3-13, 16-26, 29-105	YES
	Claims	1, 2, 14, 15, 27, 28	NO
Inventive step (IS)	Claims	None	YES
	Claims	105	NO
Industrial applicability (IA)	Claims	105	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1, 2, 14, 15, 27, 28 lack novelty under PCT Article 33(2) as being anticipated by Amini et al., hereinafter referred to as Amini.

Regarding claim 1, Amini discloses a source encoder (multi-encoder platform 220, para 0031, see fig. 2 [whose components are shown in the computing system of fig. 11, para 0068]), comprising: a processor (processor 1102, para 0068, 0069, see fig. 11); non-volatile storage containing an encoding application (memory 1104 [RAM or ROM (nonvolatile)], para 0068, 0069, see fig. 11); wherein the encoding application configures the processor to: receive source content (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2); obtain common cryptographic information (encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054); encode the source content as a plurality of streams including a plurality of alternative streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and protect the plurality of alternative streams of content using the common cryptographic information (same key is used for different streams, para 0054, 0044 [protecting the content]).

Regarding claim 14, Amini discloses a method of encoding source content as a plurality of protected streams using common cryptographic information (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2), comprising: receiving source content using a source encoder (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2); obtaining common cryptographic information using a source encoder (encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054); encoding the source content as a plurality of streams including a plurality of alternative streams of content using the source encoder (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and protecting the plurality of alternative streams of content using the source encoder and the common cryptographic information (same key is used for different streams, para 0054, 0044 [protecting the content]).

Regarding claim 27, Amini discloses a machine readable medium containing processor instructions (machine readable medium, claim 26; multi-encoder platform 220, para 0031, see fig. 2 [whose components are shown in the computing system of fig. 11, para 0068]), where execution of the instructions by a processor causes the processor to perform a process (processor 1102, para 0068, 0069, see fig. 11) comprising receiving source content using a source encoder (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2); obtaining common cryptographic information using a source encoder (encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054); encoding the source content as a plurality of streams including a plurality of alternative streams of content using the source encoder (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and protecting the plurality of alternative streams of content using the source encoder and the common cryptographic information (same key is used for different streams, para 0054, 0044 [protecting the content]).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claims 2 and 15, Amini teaches wherein the encoding application configures the processor to encode and protect the source content by configuring the processor to: encode a portion of source content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and encrypt at least one portion of the encoded portion of content so that the at least one encrypted portion can be accessed using the common cryptographic information (same key is used for different streams [which are encrypted using the encryptor 220, para 0032, see fig. 2], para 0054, 0044 [protecting the content]).

Regarding claim 28, Amini discloses wherein the machine readable medium is non-volatile memory (memory 1104 with ROM [non-volatile], para 0068, 0069, see fig. 11).

Claims 29-33, 36-40, 49-53, 56-58 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Schnell and further in view of Amini.

Regarding claim 29, Thorwirth discloses a content distribution system (system for enhancing security of content distribution, para 0018), comprising a content distribution server (content ingested on server 301 part of a content distribution network, para 0052),where the content distribution server stores a plurality of content files containing alternative streams of protected content associated with a title (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052),the alternative streams of protected content are protected using cryptographic information (the chunks are protected using different watermark payloads, para 0052), and each content file includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); wherein a server is configured to: receive a request for access to the alternative streams of protected content associated with the title from a playback device (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]);and securely provide a copy of the at least one encryption key used to encrypt the cryptographic information to the playback device (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064);and wherein the content distribution server is configured to grant the playback device access to the alternative streams of protected content (server provides access to the client based on the selection or chunks requested, para 0053). Thorwirth lacks the teaching of comprising: a DRM server; a container file; common cryptographic information. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]). Further, Schnell is in the field of segmented media content rights management (abstract, title) and teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 49, Thorwirth discloses a method of distributing content encoded as a plurality of alternative streams of protected content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052), where the alternative streams of protected content are protected using cryptographic information (the chunks are protected using different watermark payloads, para 0052) and each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058), the method comprising: receiving a request for access to the alternative streams of protected content associated with the title from a playback device using a server (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); securely providing to the playback device at least one encryption key using the server (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064), where the at least one encryption key is used to access the encrypted cryptographic information (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and granting the playback device access to the alternative streams of protected content using a content distribution server (content ingested on server 301 part of a content distribution network, para 0052; server provides access to the client based on the selection or chunks requested, para 0053).Thorwirth lacks the teaching of comprising: a DRM server; a container file; common cryptographic information. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]). Further, Schnell is in the field of segmented media content rights management (abstract, title) and teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 30, Thorwirth as modified teaches wherein the server is configured to associate a title ID with the title (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052). Thorwirth lacks the teaching of a DRM server. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004).

Regarding claim 31, Thorwirth teaches wherein server is configured to associate the cryptographic information with the title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052). Thorwirth lacks the teaching of a DRM server and a common cryptographic information. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 32, Thorwirth teaches wherein the request for access to the alternative streams of protected content associated with the title comprises a request identifying a title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052).

Regarding claim 33, Thorwirth teaches wherein the content distribution server is further configured to: receive requests for portions of at least one container file from the playback device (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and provide the requested portions of the at least one container file to the playback device (server provides access to the client based on the selection or chunks requested para 0053).

Regarding claim 36, Thorwirth teaches obtain common cryptographic information from the server (the chunks are protected using different watermark payloads, para 0052); receive source content, encode the source content as a plurality of streams including a plurality of alternative streams of content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); protect the plurality of alternative streams of content using cryptographic information (the chunks are protected using different watermark payloads, para 0052); protect the cryptographic information using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and provide a plurality of content files containing the plurality of alternative streams of protected content to the content distribution server (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052). However, Thorwirth lacks the teaching of a source encoder, common cryptographic information and a DRM server, container files. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]). Further, Schnell is in the field of segmented media content rights management (abstract, title) and teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution source encoder (multi-encoder platform 220, para 0031, see fig. 2 [whose components are shown in the computing system of fig. 11, para 0068]) with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 37, Thorwirth lacks the teaching wherein the source encoder is configured to: encode a portion of content; and encrypt at least one portion of the encoded content so that the at least one encrypted portion can be accessed using the common cryptographic information. Amini teaches wherein the source encoder is configured to: encode a portion of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and encrypt at least one portion of the encoded portion of content so that the at least one encrypted portion can be accessed using the common cryptographic information (same key is used for different streams [which are encrypted using the encryptor 220, para 0032, see fig. 2], para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 38, Thorwirth lacks the teaching wherein the source encoder is configured to write each of the alternative streams of protected content to a separate container file. However, Thorwirth shows wherein the alternative streams of protected content are written into a container file is well known in the art (sections of multiple files are created with pointers within a container file, para 0004, 0010). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file feature in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).

Regarding claim 39, Thorwirth teaches each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058), but lacks the teaching wherein the source encoder is configured to process common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 40, Thorwirth teaches wherein the source encoder is configured to encrypt at least a portion of the cryptographic information using a single encryption key and write the encrypted information to each of the container files containing the alternative streams of protected content (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058), but lacks the teaching wherein the source encoder is configured to process common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 50, Thorwirth teaches wherein the title is identified using a title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052).

Regarding claim 51, Thorwirth teaches wherein the common cryptographic information is associated with the title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052). Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 52, Thorwirth teaches wherein the request for access to the alternative streams of protected content associated with the title comprises a request identifying a title ID (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052).

Regarding claim 53,Thorwirth teaches receiving requests for portions of at least one container file from the playback device using the content distribution server (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and providing the requested portions of the at least one container file to the playback device using the content distribution server (server provides access to the client based on the selection or chunks requested para 0053).

Regarding claim 56, Thorwirth teaches obtain common cryptographic information from the server (the chunks are protected using different watermark payloads, para 0052); receive source content, encode the source content as a plurality of streams including a plurality of alternative streams of content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); protect the plurality of alternative streams of content using cryptographic information (the chunks are protected using different watermark payloads, para 0052); protect the cryptographic information using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and provide a plurality of content files containing the plurality of alternative streams of protected content to the content distribution server (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052). However, Thorwirth lacks the teaching of a source encoder, common cryptographic information and a DRM server, container files. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]). Further, Schnell is in the field of segmented media content rights management (abstract, title) and teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Furthermore, Amini teaches a content distribution source encoder (multi-encoder platform 220, para 0031, see fig. 2 [whose components are shown in the computing system of fig. 11, para 0068]) with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 57, Thorwirth lacks the teaching of encoding a portion of content using the source encoder; and encrypting at least one portion of the encoded content using the source encoder so that the at least one encrypted portion can be accessed using the common cryptographic information. Amini teaches wherein the source encoder is configured to: encode a portion of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2); and encrypt at least one portion of the encoded portion of content so that the at least one encrypted portion can be accessed using the common cryptographic information (same key is used for different streams [which are encrypted using the encryptor 220, para 0032, see fig. 2], para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 58, Thorwirth lacks the teaching wherein the source encoder is configured to write each of the alternative streams of protected content to a separate container file. However, Thorwirth shows wherein the alternative streams of protected content are written into a container file is well known in the art (sections of multiple files are created with pointers within a container file, para 0004, 0010). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file feature in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 67, 69, 84, 86, 103, 105 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Amini.

Regarding claim 67, Thorwirth discloses a playback device (client device or user requests access for playback, para 0053), comprising: a processor (client device is a personal computer 404, mobile phone 406 or consumer electronics device 408 [a processor is inherent], para 0056, see fig. 4); memory containing a client application (client device is a personal computer 404, mobile phone 406 or consumer electronics device 408 [a memory is inherent], para 0056, see fig. 4); wherein the client application configures the processor to: request a file identifying a plurality of alternative streams of protected content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]),where each of the alternative streams of protected content are encrypted using cryptographic information (the chunks are protected using different watermark payloads, para 0052); request portions of content from at least the plurality of alternative streams of protected content (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); access the protected content using the cryptographic information (content ingested on server 301 part of a content distribution network, para 0052; server provides access to the client based on the selection or chunks requested, para 0053); and playback the content (playback of content on the client device, para 0053). Thorwirth lacks the teaching of a top level index file obtain the common cryptographic information. However, Thorwirth teaches a top level index file is well known in the art (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 84, Thorwirth discloses a method of performing adaptive bitrate streaming using a plurality of alternative streams of protected content (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052 [chunks differ in encoding and bit rat : adaptive bitrate streaming system, para 0005]), where each of the streams of protected content is protected using cryptographic information (), the method comprising: requesting a file identifying a plurality of alternative streams of protected content using a playback device (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]), where each of the alternative streams of protected content are encrypted using cryptographic information (the chunks are protected using different watermark payloads, para 0052); obtaining the cryptographic information using the playback device (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); requesting portions of content from at least the plurality of alternative streams of protected content using the playback device (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); accessing the protected content using the playback device and the cryptographic information (content ingested on server 301 part of a content distribution network, para 0052; server provides access to the client based on the selection or chunks requested, para 0053); and playing back the content using the playback device (playback of content on the client device, para 0053).Thorwirth lacks the teaching of a top level index file obtain the common cryptographic information. However, Thorwirth teaches a top level index file is well known in the art (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 103, Thorwirth discloses a machine readable medium containing processor instructions, where execution of the instructions by a processor causes the processor to perform a process (implementation process, para 0047 [CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052]) comprising: request a file identifying a plurality of alternative streams of protected content (link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]), where each of the alternative streams of protected content are encrypted using cryptographic information (the chunks are protected using different watermark payloads, para 0052); obtaining the cryptographic information (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); requesting portions of content from at least the plurality of alternative streams of protected content (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); accessing the protected content using the cryptographic information (content ingested on server 301 part of a content distribution network, para 0052; server provides access to the client based on the selection or chunks requested, para 0053); and playing back the content (playback of content on the client device, para 0053).Thorwirth lacks the teaching of a top level index file obtain the common cryptographic information. However, Thorwirth teaches a top level index file is well known in the art (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claims 69 and 86, Thorwirth lacks the teaching wherein each of the alternative streams of protected content is contained within a separate container file; and the top level index file identifies a container file containing each of the alternative streams. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).

Regarding claim 105, Thorwirth lacks the teaching wherein the machine readable medium is non-volatile memory. Amini teaches wherein the machine readable medium is non-volatile memory (memory 1104 with ROM [non-volatile], para 0068, 0069, see fig. 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the non-volatile memory for storing the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Claims 3, 16 lack an inventive step under PCT Article 33(3) as being obvious over Amini and in view of Schnell.

Regarding claims 3 and 16, Amini lacks the teaching wherein the encoding application configures the processor to obtain common cryptographic information by configuring the processor to: send a request to a DRM server for common cryptographic information; and receive the common cryptographic information from the DRM server. However, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Further, Schnell teaches a DRM system that sends cryptographic information to the media device (DRM system 118 with domain controller 124 and license server 126, where the DRM system encrypts the media content, licenser server can issue DRM licenses before media content by various media devices, para 0022, 0023 [media device 202 also includes DRM platform 21 to receive the DRM license, para 0034]).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No: PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 4-8, 17-21 lack an inventive step under PCT Article 33(3) as being obvious over Amini and in view of Thorwirth.

Regarding claims 4 and 17, Amini teaches the common cryptographic content and the plurality of alternative streams of protected content (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054), but lacks the teaching wherein a title is associated with the common cryptographic content and the plurality of alternative streams of protected content. Thorwirth teaches a title is associated with the cryptographic content and the plurality of alternative streams of protected content (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]; the chunks are protected using different watermark payloads, para 0052). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the title feature in the invention of Amini for the purpose of providing the content distribution server a link that includes a unique identifier that enables the server to determine the information to be embedded in the chunk (Thorwirth, para 0057).

Regarding claims 5 and 18, Amini lacks the teaching wherein the encoding application configures the processor to write each of the alternative streams of protected content to a separate container file. However, Thorwirth shows wherein the alternative streams of protected content are written into a container file is well known in the art (sections of multiple files are created with pointers within a container file, para 0004, 0010). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file feature in the invention of Amini for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).

Regarding claims 6 and 19, Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054), but lacks the teaching of the cryptographic information encrypted using at least one encryption key to each of the container files containing the alternative streams of protected content. Thorwirth teaches each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption key in the invention of Amini for the purpose of providing an encryption key unique to a specific user or client device and the encrypted data is delivered securely and individually to the user and/or client device (Thorwirth, para 0058).

Regarding claims 7 and 20, Amini teaches wherein writing the at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054), but lacks the teaching of writing to the container files containing the alternative streams of protected content comprises encrypting the at least a portion of the common cryptographic information written to each of the container files using at least one encryption key. Thorwirth teaches each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption key in the invention of Amini for the purpose of providing an encryption key unique to a specific user or client device and the encrypted data is delivered securely and individually to the user and/or client device (Thorwirth, para 0058).

Regarding claims 8 and 21, Amini teaches wherein writing the at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054), but lacks the teaching of writing to the container files containing the alternative streams of protected content comprises encrypting the at least a portion of the common cryptographic information written to each of the container files using the same encryption key. However, Thorwirth teaches each stream of protected content includes a copy of the cryptographic information encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). Further, encrypting the content for protection is well known in the art and the specifics (using same encryption key) would have been a matter of design choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption key in the invention of Amini for the purpose of providing an encryption key unique to a specific user or client device and the encrypted data is delivered securely and individually to the user and/or client device (Thorwirth, para 0058).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 9, 22 lack an inventive step under PCT Article 33(3) as being obvious over Amini and in view of Thorwirth and further in view of Soroushian et al., hereinafter referred to as Soroushian.

Regarding claims 9 and 22, Amini lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Claims 10-13, 23-26 lack an inventive step under PCT Article 33(3) as being obvious over Amini and in view of Thorwirth and further in view of Soroushian and even further in view of Schnell.

Regarding claims 10 and 23, Amini teaches common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054) wherein, but lacks the teaching wherein the encoding application configures the processor to write a DRMHeader element to the TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Amini for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 11 and 24, Amini teaches common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054) wherein, but lacks the teaching wherein the common cryptographic information is a set of encryption keys; the encoding application configures the processor to: encrypt the set of encryption keys using at least one encryption key; and write the encrypted set of encryption keys to the DRMHeader element of each of the Matroska container files. Thorwirth teaches a set of encryption keys for each chunk of content ((the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption key in the invention of Amini for the purpose of providing an encryption key unique to a specific user or client device and the encrypted data is delivered securely and individually to the user and/or client device (Thorwirth, para 0058). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Further, Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Amini for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claims 12 and 25, Amini teaches wherein: the source content includes a stream of video (bitstreams are series of compressed data units (video frames), para 0037); and the encoding application configures the processor to: encode a frame of video (encoding parameters generate several compressed data units of the original, para 0037); protect the encoded frame of video by encrypting at least a portion of the encoded frame of video (encryption is done, para 0041, encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Amini lacks the teaching to write a BlockGroup element to a Matroska container file including a DRMinfo element identifying the at least one portion of the encoded frame of video that is encrypted and at least one encryption key from the set of encryption keys used to access the at least one encrypted portion of the encoded frame of video. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches a DRMinfo element identifying the protected encoded element and using an encryption key from the set of encryption keys used to access the encrypted encoded content (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036; tracks objects 22 which has the track attributes and segment data to identify the content, para 0037).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Amini for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 13 and 26, Amini lacks the teaching wherein the encoding application further configures the processor to: generate an index for each Matroska container file during the encoding of each of the streams of protected content; and write a Cues element containing the index to the indexed Matroska container file. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Amini for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments, para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Amini for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Claims 34, 35, 41-48, 54, 55, 59-66 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Schnell and further in view of Amini and even further in view of Soroushian.

Regarding claim 34, Thorwirth lacks the teaching wherein the plurality of container files are Matroska container files. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Regarding claim 35, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 41, Thorwirth lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 42, Thorwirth lacks the teaching wherein the source encoder is configured to write a DRMHeader element to a TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 43, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information and write the encrypted set of encryption keys to the DRMHeader element of each of the Matroska container files. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Further, Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 44, Thorwirth wherein: the source content includes a stream of video (content ingested on server 301 part of a content distribution network, para 0052 [video]); and configured to: encode a frame from the stream of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); protect the encoded frame of video by encrypting at least a portion of the encoded frame of video (the chunks are protected using different watermark payloads, para 0052), but lacks the teaching wherein to write a BlockGroup element to a Matroska container file including a DRMinfo element identifying the at least one portion of the encoded frame of video that is encrypted and at least one encryption key from the set of encryption keys used to access the at least one encrypted portion of the encoded frame of video. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches a DRMinfo element identifying the protected encoded element and using an encryption key from the set of encryption keys used to access the encrypted encoded content (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036; tracks objects 22 which has the track attributes and segment data to identify the content, para 0037).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 45, Thorwirth lacks the teaching wherein the source encoder is configured to: generate an index for each Matroska container file during the encoding of each of the streams of protected content; and write a Cues element containing the index to the indexed Matroska container file. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments, para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 46, Thorwirth lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Regarding claim 47, Thorwirth lacks the teaching wherein the source encoder is configured to write a DRMHeader element to a TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 48, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 54, Thorwirth lacks the teaching wherein the plurality of container files are Matroska container files. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 55, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 59, Thorwirth lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Regarding claim 60, Thorwirth lacks the teaching wherein the source encoder is configured to write a DRMHeader element to a TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 61, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information and write the encrypted set of encryption keys to the DRMHeader element of each of the Matroska container files. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Further, Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 62, Thorwirth wherein: the source content includes a stream of video (content ingested on server 301 part of a content distribution network, para 0052 [video]); and configured to: encode a frame from the stream of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); protect the encoded frame of video by encrypting at least a portion of the encoded frame of video (the chunks are protected using different watermark payloads, para 0052), but lacks the teaching wherein to write a BlockGroup element to a Matroska container file including a DRMinfo element identifying the at least one portion of the encoded frame of video that is encrypted and at least one encryption key from the set of encryption keys used to access the at least one encrypted portion of the encoded frame of video. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches a DRMinfo element identifying the protected encoded element and using an encryption key from the set of encryption keys used to access the encrypted encoded content (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036; tracks objects 22 which has the track attributes and segment data to identify the content, para 0037).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 63, Thorwirth lacks the teaching wherein the source encoder is configured to: generate an index for each Matroska container file during the encoding of each of the streams of protected content; and write a Cues element containing the index to the indexed Matroska container file. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments, para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claim 64, Thorwirth lacks the teaching wherein the container files are Matroska container files. Soroushian is in the field of playback and distribution systems (abstract) and further teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).

Regarding claim 65, Thorwirth lacks the teaching wherein the source encoder is configured to write a DRMHeader element to a TracksData element in a Tracks element within each of the Matroska container files, where the DRMHeader element includes an encrypted copy of the common cryptographic information. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 66, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Claims 70-74, 87-93 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Amini and Schnell.

Regarding claims 70 and 87, Thorwirth lacks the teaching wherein: the container files containing each of the alternative streams of protected content comprise at least one header including the common cryptographic information and information that describes the encoding of the stream of protected content; and the top level index file identifies the location of the at least one header within each container file. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010). Further, Schnell teaches one header including the cryptographic information and information that describes the encoding of the stream of the protected content and identifies the location of one header within each container file (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated with the tracks or video tracks, para 0037, see fig. 2).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]).

Regarding claims 71 and 88, Thorwirth teaches wherein cryptographic information is a set of encryption keys (the chunks are protected using different watermark payloads, para 0052). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

Regarding claim 72, Thorwirth teaches wherein set of encryption keys is encrypted (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the client application configures the processor to securely receive cryptographic information used to unencrypt the set of encryption keys (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claims 73 and 92, Thorwirth lacks the teaching wherein the client application configures the processor to obtain the common cryptographic information by requesting at least one header of a container file identified in the top level index file. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010). Further, Schnell teaches one header including the cryptographic information and information that describes the encoding of the stream of the protected content and identifies the location of one header within each container file (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated with the tracks or video tracks, para 0037, see fig. 2).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]).

Regarding claims 74 and 93, Thorwirth lacks the teaching wherein: each container file containing one of the alternative streams of protected content further comprises an index; and the client application configures the processor to request a portion of content from one of the container files by configuring the processor to: request at least a portion of an index from the container file; identify the portion of the container file containing a specific portion of content using the index; and request the identified portion of the container file. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009), request a portion of content from one of the container files (client device authenticated requests access to choose content choice for playback, para 0053); identify the portion of the container file containing a specific portion of content (link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and request the identified portion of the container file (server provides access to the client based on the selection or chunks requested, para 0053). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010). Further, Schnell teaches one header including the cryptographic information and information that describes the encoding of the stream of the protected content and identifies the location of one header within each container file (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated with the tracks or video tracks, para 0037, see fig. 2).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004).

Regarding claim 89, Thorwirth teaches wherein: the set of encryption keys is encrypted so that it is accessible using cryptographic information obtained by the playback device (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the method further comprising obtaining cryptographic information using the playback device (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064).

Regarding claim 90, Thorwirth teaches wherein the set of encryption keys is encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the playback device securely obtains the at least one encryption key (copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064).

Regarding claim 91, Thorwirth lacks the teaching wherein the at least one encryption key is encrypted using at least one encryption key included in the cryptographic information bound to the playback device. However, Thorwirth teaches wherein the set of encryption keys is encrypted using at least one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the playback device securely obtains the at least one encryption key (copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device, para 0058, hashing or encrypting the encrypted content and key, para 0064). Furthermore, defining multiple encryptions is well known in the art and the specifics would have been a matter of design choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the encryption features in the invention for the purpose of providing protection against unauthorized used and distribution of content (Thorwirth, para 0058).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 68, 75-83, 85, 94-102, 104 lack an inventive step under PCT Article 33(3) as being obvious over Thorwirth and in view of Amini and further in view of Schnell and further in view of Soroushian.

Regarding claims 68 and 85, Thorwirth teaches wherein the alternative streams of protected content are alternative streams of protected video (CDN stores six alternative chunks [video] created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); each of the alternative streams of protected video includes information indicating portions of frames of video that are encrypted and identifying at least a portion of the cryptographic information used to access the encrypted portions of the frames of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and the client application configures the processor to: obtain a protected frame of video from one of the alternative streams of protected video (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); obtain information indicating a portion of the protected frame of video that is encrypted (the chunks are protected using different watermark payloads, para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); identify at least a portion of the cryptographic information that is used to access the encrypted portion of the protected frame using the information (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device [this encryption key identifies the encrypted content to be sent], para 0058, hashing or encrypting the encrypted content and key, para 0064); decrypt the encrypted portion of the protected frame of video using the identified portion of the common cryptographic information (decryption of streamed file utilizes the content keys based on the sections, para 0059). Thorwirth lacks the teaching of common cryptographic information and a DRM server and decoding the frames of video. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Furthermore, Soroushian teaches a playback can identify and decode the data (decode the appropriate data, para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the decoder in the invention of Thorwirth for the purpose of decoding multimedia and present audio, video and subtitle information in a synchronized manner (Soroushian, para 0003).

Regarding claims 75 and 94, Thorwirth lacks the teaching wherein the plurality of container files are Matroska container files. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003).
Regarding claims 76 and 95, Thorwirth lacks the teaching wherein the common cryptographic information is stored in a common DRM Header element contained within a Tracks element within each of the Matroska container files containing the alternative streams of protected content. Amini teaches wherein the encoding application configures the processor to write at least a portion of the common cryptographic information (a stream source 210 offers unencoded access units [frames] to the encoder, para 0031, see fig. 2; encryptor 240 where the streams are encrypted, para 0032, see fig. 2; same key is used for different streams [common cryptographic information], para 0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claims 77 and 96, Thorwirth teaches wherein: a set of encryption keys for each chunk of content (the chunks are protected using different watermark payloads, para 0052) and encrypt the set of encryption keys using one encryption key (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of common cryptographic information and write the encrypted set of encryption keys to the DRMHeader element. Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 78 and 97, Thorwirth teaches wherein set of encryption keys is encrypted (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058); and the client application configures the processor to securely receive cryptographic information used to unencrypt the set of encryption keys (the content keys used to encrypt the content are encrypted using a key unique to a specific user or client device, para 0058). However, Thorwirth lacks the teaching of cryptographic information stored in a DRM header element. Schnell teaches writing encrypted set of encryption keys to the DRMHeader element (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 79 and 98, Thorwirth lacks the teaching wherein the client application configures the processor to obtain the DRM Header element by requesting a Tracks element from one of the Matroska container files identified in the top level index file. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010). Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches writing a DRMHeader element to the tracksDATA element in a Tracks element within each of the content files, wherein the DRMHeader element includes an encrypted copy of the cryptographic information (file header object 218 [DRM header element] has the DRM licenses for the protected media content, para 0036, written in a file segment 160, which has track objects 222 associated i=with the tracks or video tracks, para 0037, see fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 80 and 99, Thorwirth lacks the teaching wherein: each Mastroska container file containing an alternative stream of protected content further comprises an index contained within a Cues element; and the client application configures the processor to request a portion of content from one of the Matroska container files by configuring the processor to: request at least a portion of a Cues element from a Matroska container file containing one of the alternative streams of protected content; identify a portion of the Matroska container file containing a specific portion of content using at least one CueTrackPosition element within the Cues element; and request the portion of the Matroska container file identified by the at least one CueTrackPosition element. However, Thorwirth shows how well known in the art are container files (sections of files in a container file, para 0004, different media containers for adaptive streaming, para 0009 [background]) and a top level index file identifies a container file containing each of the alternative streams (top level index file pointing to a number of alternate streams that contain actual video and audio data, para 0009). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Thorwirth to incorporate the container file and top level index file in the invention for the purpose of providing a playlist with a list of URLS pointing to TS container files that contain alternative chunks for the sections of a piece of content (Thorwirth, para 0010).
Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]) and identifying a portion of the MKV container using CueTrackPosition element (table with hierarchical index identifiers with CUEPOS_ID, table above para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments, para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claims 81 and 100, Thorwirth lacks the teaching wherein the index comprises a plurality of CueTrackPosition elements that identify the location of a plurality of Cluster elements within the Matroska container file. Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]) and identifying a portion of the MKV container using CueTrackPosition element (table with hierarchical index identifiers with CUEPOS_ID, table above para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the Matroska container files in the invention of Thorwirth for the purpose of providing a MKV container for distributing high-definition downloadable content on the internet and peer-to-peer networks (Soroushian, para 0003). Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments [segments can be interpreted as track elements or comprising of cluster elements], para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).

Regarding claims 82 and 101, Thorwirth lacks the teaching wherein: each Cluster element contains a plurality of BlockGroup elements including encoded portions of content; a Cue Track Position element indexes each Cluster element; and each CueTrackPosition element includes the size of the Cluster element that it indexes. Schnell teaches an index for each content field for the streams of protected content (file index 158 for each file and the corresponding segments [segments can be interpreted as track elements or comprising of cluster elements], para 0031, see fig. 2); and write a Cues element containing the index to the indexed file (track objects 222 has the attributes and information included in a track [Cues element], para 0036, 0037, see fig. 2 and includes size, type, mode ID, index, Algorithm ID with index, para 0041 and table under it). Furthermore, defining the specifics of file headers and clusters would have been a matter of design choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM elements in the invention of Thorwirth for the purpose of seamlessly rendering all of the segments of a movie, without managing a multitude of DRM licenses for the different versions of the median content segments (Schnell, para 0036).
Regarding claims 83 and 102, Thorwirth teaches wherein the alternative streams of protected content are alternative streams of protected video (CDN stores six alternative chunks [video] created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); each of the alternative streams of protected video includes information indicating portions of frames of video that are encrypted and identifying at least a portion of the cryptographic information used to access the encrypted portions of the frames of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and the client application configures the processor to: obtain a protected frame of video from one of the alternative streams of protected video (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); obtain information indicating a portion of the protected frame of video that is encrypted (the chunks are protected using different watermark payloads, para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); identify at least a portion of the cryptographic information that is used to access the encrypted portion of the protected frame using the information (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device [this encryption key identifies the encrypted content to be sent], para 0058, hashing or encrypting the encrypted content and key, para 0064); decrypt the encrypted portion of the protected frame of video using the identified portion of the common cryptographic information (decryption of streamed file utilizes the content keys based on the sections, para 0059). Thorwirth lacks the teaching of common cryptographic information, a Matroska container file and a DRM server and decoding the frames of video. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Furthermore, Soroushian teaches wherein the content is stored as chunks or elements in a Matroska container (MKV container composed of lists, chunks and/or elements, para 0031, see fig. 1c [Matroska is MKV, para 003]) and further teaches a playback can identify and decode the data (decode the appropriate data, para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the decoder in the invention of Thorwirth for the purpose of decoding multimedia and present audio, video and subtitle information in a synchronized manner (Soroushian, para 0003).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/068276

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 104, Thorwirth teaches wherein the alternative streams of protected content are alternative streams of protected video (CDN stores six alternative chunks [video] created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052); each of the alternative streams of protected video includes information indicating portions of frames of video that are encrypted and identifying at least a portion of the cryptographic information used to access the encrypted portions of the frames of video (CDN stores six alternative chunks created for each section with different encoding parameters and two different watermark payloads [alternative streams of protected content], para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); and the client application configures the processor to: obtain a protected frame of video from one of the alternative streams of protected video (client device authenticated requests access to choose content choice for playback, para 0053; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); obtain information indicating a portion of the protected frame of video that is encrypted (the chunks are protected using different watermark payloads, para 0052; link has a part that identifies the chunk to be accessed [part that identifies the chunk is the title with a unique identifier, para 0057]); identify at least a portion of the cryptographic information that is used to access the encrypted portion of the protected frame using the information (a copy of the encryption key used for the encryption of the content key is delivered securely to the specific user or client device [this encryption key identifies the encrypted content to be sent], para 0058, hashing or encrypting the encrypted content and key, para 0064); decrypt the encrypted portion of the protected frame of video using the identified portion of the common cryptographic information (decryption of streamed file utilizes the content keys based on the sections, para 0059). Thorwirth lacks the teaching of common cryptographic information and a DRM server and decoding the frames of video. Schnell teaches a content distributor with a DRM system (content server 122 and a DRM system 118 distribute protected media content 120 to various wireless media devices 106, para 0028-0031). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Schnell to incorporate the DRM system in the invention of Thorwirth for the purpose of providing DRM associated features such as licenses that correspond to the media segments of the protected media (Schnell, para 0004). Further, Amini teaches a content distribution with common cryptographic information for the alternate streams of content (multi-encoder 220 generates multiple encoded access units and gives alternate or multiple streams, para 0031, see fig. 2; same key is used for different streams, para 0054, 0044 [protecting the content]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Amini to incorporate the common cryptographic information in the invention of Thorwirth for the purpose of encrypting and protecting the alternate streams of source content and allowing random access and joining a broadcasted multimedia stream at a point somewhere other than at the beginning of the stream (Amini, para 0041, 0054). Furthermore, Soroushian teaches a playback can identify and decode the data (decode the appropriate data, para 0037). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Soroushian to incorporate the decoder in the invention of Thorwirth for the purpose of decoding multimedia and present audio, video and subtitle information in a synchronized manner (Soroushian, para 0003).

Claims 1-105 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference D1.02469AB.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 13/20572	International filing date *(day/month/year)* 07 January 2013 (07.01.2013)	(Earliest) Priority Date *(day/month/year)* 08 January 2012 (08.01.2012)
Applicant DIVX, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. 1

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 13/20672

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 15/16 (2013.01)
USPC - 726/9,10
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC: 726/9,10; IPC(8): G06F 15/16 (2013.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 726/2,3,5,9,10,21

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PatBase; Google Scholar
Search Terms: digital rights management, DRM, processor, server, memory, storage, RAM, network, online, web, internet, electronic ticket, electronic receipt, electronic token, digital content, request content, DRM server, enable play, merchant server, send ticket

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/0149450 A1 (STEFIK et al.) 07 July 2005 (07.07.2005), abstract and para [0017]-[0018], [0063]-[0066], [0083]-[0094], [0098], [0103], [0107]-[0108], [0120], [0127], [0129], [0134], [0136], [0138], [0140], [0152]-[0153], [0162], [0164], [0169], [0191], [0199]-[0200], [0212], [0215], [0219]-[0220], [0231], [0259]-[0260], [0277], [0292], [0305], [0317], [0346], [0353]-[0358], [0424], [0513], [0521], [0547], [0570], claim 6.	1-60
A	US 2010/0138903 A1 (MEDVINSKY) 03 June 2010 (03.06.2010), entire document.	1-60
A	US 2008/0066181 A1 (HAVESON et al.) 13 March 2008 (13.03.2008), entire document.	1-60
A	US 2009/0228395 A1 (WEGNER et al.) 10 September 2009 (10.09.2009) entire document	1-60

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 March 2013 (19.03.2013)	29 APR 2013
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID J. BAILEY
KAUTH, POMEROY, PECK & BAILEY LLP
2400 E. KATELLA AVE., SUITE 1050
ANAHEIM, CA 92806

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	29 APR 2013
Applicant's or agent's file reference D1.02459AB.PCT	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 13/20572	07 January 2013 (07.01.2013)	06 January 2012 (06.01.2012)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06F 15/16 (2013.01)
USPC - 726/9

Applicant DIVX, LLC

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	19 March 2013 (19.03.2013)	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 13/20572

Box No. I **Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 13/20572

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	None	YES
	Claims	1-60	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-60	NO
Industrial applicability (IA)	Claims	1-60	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-60 lack novelty under PCT Article 33(2) as being anticipated by US 2005/0149450 A1 to Stefik, et al. (hereinafter 'Stefik').

As to claim 1, Stefik teaches a user device, comprising: (a) a processor (para [0134] - "processor element 1201 may be a microprocessor or other suitable computing component"); (b) a network interface (para [0136] - "external interface means 1205 may also provide network connectivity"), and (c) memory (para [0134] - "memory") configured to store: (i) an electronic ticket (para [0083] - "digital ticket"), and (ii) a ticket token (para [0083]-[0086], [0191] - "token"); (d) wherein the processor is configured by an application to: (i) send a request for digital content (para [0093] - "The digital work remains securely in Repository 1 until a request for access is received"); (ii) receive a ticket token from a merchant server, wherein the ticket token is generated by a DRM server and associated with an electronic ticket that enables playback of the requested digital content (para [0017], [0093], [0212], [0356] - "credit server"; "A transaction involving digital tickets must locate an appropriate digital ticket agent who can "punch" or otherwise validate the ticket before the transaction can proceed"); (iii) send the ticket token to a DRM server (para [0017], [0093], [0354]-[0356] - "requester sends the server a message to initiate the play transaction"); (iv) receive an electronic ticket that enables playback of requested digital content (para [0353]-[0358] - "server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right"); (v) request the digital content associated with the electronic ticket (para [0353]-[0358] - "play transaction is a request to use the contents of a work"); and (vi) play back the requested digital content using the electronic ticket (para [0162], [0164], [0169], [0353]-[0358] - "The set of rights attached to a digital work define how that digital work may be transferred, used, performed or played"; "The requester plays the work contents, using the player").

As to claim 2, Stefik further teaches a user device wherein the electronic ticket includes a torn status (para [0083]-[0084], [0138] - "ticket agent which is used to "punch" a digital ticket").

As to claim 3, Stefik further teaches a user device wherein the electronic ticket is an XML file (para [0547], claim 6).

As to claim 4, Stefik further teaches a user device wherein the electronic ticket identifies the purchased digital content (para [0083]-[0086]).

As to claim 5, Stefik further teaches a user device wherein the electronic ticket includes a characteristic of the purchased content selected from the group consisting of: information identifying the content that was purchased, a license indicating how the content can be played back, a purchase price, a merchant transaction identifier, the identification of a customer who purchased the ticket, and the identification of a customer owning the ticket (para [0083], [0219], [0231] - "A ticket is an indicator that the ticket holder has already paid for or is otherwise entitled to some specified right, product or service").

As to claim 6, Stefik further teaches a user device wherein the electronic ticket is associated with cryptographic data that can be used to access the digital content to which the electronic ticket refers (para [0107], [0140], [0317]).

As to claim 7, Stefik further teaches a user device wherein the ticket token references the electronic ticket, a customer, and the requested digital content (para [0083], [0191], [0354]-[0355]).

As to claim 8, Stefik further teaches a user device wherein the processor is further configured to receive access information for the digital content (para [0017]-[0018], [0093], [0108]).

As to claim 9, Stefik further teaches a user device wherein the access information includes at least one piece of information selected from the group consisting of: a top level index of the digital content, an identifier for the digital content, and cryptographic data that can be used to access the digital content (para [0108] - "unique identifier for the work in the repository").

As to claim 10, Stefik further teaches a user device wherein the electronic ticket is embedded in the header of a multimedia file (para [0219], [0424], [0570]).

(See Continuation Box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box V.2. Citations and explanations:

As to claim 11, Stefik teaches a method for enabling playback of digital content on a user device using an electronic ticket and a ticket token, the method comprising: (a) sending a request for digital content from a user device to a merchant server (para [0017]-[0018], [0093] - "requestor device to request access to a digital work"); (b) receiving a ticket token from the merchant server using the user device, wherein the ticket token is generated by a DRM server and associated with an electronic ticket that enables playback of the requested digital content (para [0017]-[0018], [0093], [0212], [0356] - "credit server"; "A transaction involving digital tickets must locate an appropriate digital ticket agent who can "punch" or otherwise validate the ticket before the transaction can proceed"); (c) sending the ticket token to a DRM server using the user device (para [0017]-[0018], [0093], [0354]-[0356] - "requester sends the server a message to initiate the play transaction"); (d) receiving the electronic ticket from the DRM server using the user device (para [0017]-[0018], [0353]-[0358] - "server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right"); (e) downloading the digital content associated with the electronic ticket from a content server using the user device (para [0017]-[0018], [0353]-[0358] - "play transaction is a request to use the contents of a work"; "The server and requester read and write the blocks of data as requested by the player according to the transmission protocol"); and (f) playing back the requested digital content (para [0162], [0164], [0169], [0353]-[0358] - "The set of rights attached to a digital work define how that digital work may be transferred, used, performed or played"; "The requester plays the work contents, using the player").

As to claim 12, Stefik further teaches a method wherein the electronic ticket includes a torn status (para [0083]-[0084], [0138] - "ticket agent which is used to "punch" a digital ticket").

As to claim 13, Stefik further teaches a method wherein the electronic ticket is an XML file (para [0547], claim 6).

As to claim 14, Stefik further teaches a method wherein the electronic ticket identifies the purchased digital content (para [0083]-[0086]).

As to claim 15, Stefik further teaches a method wherein the electronic ticket includes a characteristic of the purchased content selected from the group consisting of: information identifying the content that was purchased, a license indicating how the content can be played back, a purchase price, a merchant transaction identifier, the identification of a customer who purchased the ticket, and the identification of a customer owning the ticket (para [0083], [0219], [0231] - "A ticket is an indicator that the ticket holder has already paid for or is otherwise entitled to some specified right, product or service").

As to claim 16, Stefik further teaches a method wherein the electronic ticket is associated with cryptographic data that can be used to access the digital content to which the electronic ticket refers (para [0107], [0140], [0317]).

As to claim 17, Stefik further teaches a method wherein the ticket token references the electronic ticket, a customer, and the requested digital content (para [0083], [0191], [0354]-[0356]).

As to claim 18, Stefik further teaches a method further comprising receiving access information for the digital content (para [0017]-[0018], [0093], [0108]).

As to claim 19, Stefik further teaches a method wherein the access information includes at least one piece of information selected from the group consisting of: a top level index of the digital content, an identifier for the digital content, and cryptographic data that can be used to access the content (para [0108] - "unique identifier for the work in the repository").

As to claim 20, Stefik further teaches a method wherein the electronic ticket is embedded in the header of a multimedia file (para [0219], [0424], [0570]).

As to claim 21, Stefik teaches a machine readable medium containing processor instructions, where execution of the instructions by a processor causes the processor to perform a process comprising: (a) sending a request for digital content (para [0093] - "The digital work remains securely in Repository 1 until a request for access is received"); (b) receiving a ticket token, wherein the ticket token is generated by a DRM server and associated with an electronic ticket that enables playback of the requested digital content (para [0017]-[0018], [0093], [0212], [0356] - "credit server"; "A transaction involving digital tickets must locate an appropriate digital ticket agent who can "punch" or otherwise validate the ticket before the transaction can proceed"); (c) sending the ticket token to a DRM server (para [0017], [0093], [0354]-[0356] - "requester sends the server a message to initiate the play transaction"); (d) receiving the electronic ticket from the DRM server (para [0017]-[0018], [0353]-[0358] - "server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right"); (e) downloading the digital content associated with the electronic ticket from a content server using the user device (para [0017]-[0018], [0353]-[0358] - "play transaction is a request to use the contents of a work"; "The server and requester read and write the blocks of data as requested by the player according to the transmission protocol"); and (f) playing back the requested digital content (para [0162], [0164], [0169], [0353]-[0358] - "The set of rights attached to a digital work define how that digital work may be transferred, used, performed or played"; "The requester plays the work contents, using the player").

(See Next Continuation Box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box V.2. Citations and explanations:

As to claim 22, Stefik teaches a digital rights management server, comprising: (a) a processor (para [0134] - "processor element 1201 may be a microprocessor or other suitable computing component"); and (b) memory (para [0134] - "memory") configured to store: (i) an electronic ticket (para [0083] - "digital ticket"), (ii) a ticket token (para [0083]-[0086], [0191] - "token"); (c) wherein the processor is configured to: (i) authenticate a merchant server (para [0093], [0153], [0277] - "credit server will also need to have security and authentication functionality"); (ii) receive a request for a ticket token from the merchant server where the request identifies a piece of digital content (para [0083]-[0084], [0093], [0108], [0215] - "The digital work remains securely in Repository 1 until a request for access is received"; "unique identifier for the work in the repository"); (iii) generate a ticket token that expires after a predetermined time period (para [0199]-[0200], [0513] - "The Expiration-Date specifies the moment at which the usage right ends"; " time restrictions that invalidate the right after a period of time or a period of use"); (iv) associate the ticket token with an electronic ticket (para [0191], [0215], [0292] - "token can be used to simplify the expression of what rights to keep behind"); (v) send the ticket token to the merchant server for delivery to a user device (para [0017], [0093], [0354]-[0356] - "requester sends the server a message to initiate the play transaction"), (vi) receive a request to access the identified piece of digital content from the user device, where the request includes the ticket token (para [0017]-[0018], [0353]-[0358] - "play transaction is a request to use the contents of a work"; "The server and requester read and write the blocks of data as requested by the player according to the transmission protocol"); (vii) send the electronic ticket and access information for the identified piece of digital content associated with the electronic ticket to the user device (para [0017]-[0018], [0353]-[0358] - "requester sends the server a message to initiate the play transaction. This message indicates the work to be played, the version of the play right to be used in the transaction, the identity of the player being used, and the file data for the work"); and (viii) expire the ticket token (para [0199]-[0200], [0513] - "The play right can have various restrictions on its use. It could have a ticket that limits the number of times it is used. It could have internal restrictions that limit its functionality. It could have time restrictions that invalidate the right after a period of time or a period of use").

As to claim 23, Stefik further teaches a digital rights management server wherein the processor is further configured to authenticate a user device registered to a user account and associate an electronic ticket with the user account based upon the ticket token received from the user device (para [0152]-[0153], [0191], [0354]-[0356]).

As to claim 24, Stefik further teaches a digital rights management server wherein the request for a ticket token contains at least one field selected from the group consisting of: a customer identifier, a content identifier, a merchant identifier, an account link identifier, a license identifier, a stream identifier, a transaction identifier, and a price (para [0108], [0346] - "unique identifier for the work in the repository"; "requester identification, and the transaction ID").

As to claim 25, Stefik further teaches a digital rights management server wherein the processor is further configured to generate a new electronic ticket to represent a new purchase (para [0220], [0306], [0521]).

As to claim 26, Stefik further teaches a digital rights management server wherein the processor is further configured to send the electronic ticket to the merchant server (para [0083]-[0084], [0136], [0215]).

As to claim 27, Stefik further teaches a digital rights management server wherein the request to access the identified piece of digital content further includes identification of a user account to which the user device is registered (para [0152], [0162], [0277]).

As to claim 28, Stefik further teaches a digital rights management server wherein the processor is further configured to associate the electronic ticket with the user account (para [0083], [0152], [0162]).

As to claim 29, Stefik further teaches a digital rights management server wherein the processor is further configured to associate the user device with the user account (para [0017]-[0018], [0103], [0152]).

As to claim 30, Stefik further teaches a digital rights management server wherein the request to access the identified piece of digital content further includes information that identifies the characteristics or capabilities of the user device (para [0127], [0355]-[0356]).

As to claim 31, Stefik further teaches a digital rights management server wherein the processor is further configured to validate the ticket token (para [0212], [0354]-[0356]).

As to claim 32, Stefik further teaches a digital rights management server wherein the processor is further configured to enforce rules on the playback of content based upon the ticket token (para [0086], [0120], [0354]-[0356]).

As to claim 33, Stefik further teaches a digital rights management server wherein the processor is further configured to enforce rules on the playback of content based upon device characteristics (para [0017]-[0018], [0355]-[0356]).

As to claim 34, Stefik further teaches a digital rights management server wherein the access information includes at least one piece of information selected from the group consisting of: a top level index of the digital content, an identifier for the digital content, and cryptographic data that can be used to access the digital content (para [0108] - "unique identifier for the work in the repository").

(See Next Continuation Box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box V.2. Citations and explanations:

As to claim 35, Stefik teaches a method for enabling playback of digital content on a user device using an electronic ticket and an ticket token, the method comprising: (a) authenticating a merchant server using a DRM server (para [0093], [0129], [0153], [0277] - "credit server will also need to have security and authentication functionality"); (b) receiving a request for a ticket token from the merchant server at the DRM server, where the request identifies a piece of digital content (para [0083]-[0084], [0093], [0108], [0215] - "The digital work remains securely in Repository 1 until a request for access is received"; "unique identifier for the work in the repository"); (c) generating a ticket token that expires after a predetermined time period using the DRM server (para [0199]-[0200], [0513] - "The Expiration-Date specifies the moment at which the usage right ends"; " time restrictions that invalidate the right after a period of time or a period of use"); (d) associating the ticket token with an electronic ticket using the DRM server (para [0191], [0215], [0292] - "token can be used to simplify the expression of what rights to keep behind"); (e) sending the ticket token to the merchant server for delivery to a user device using the DRM server (para [0017], [0093], [0354]-[0356] - "requester sends the server a message to initiate the play transaction"); (f) authenticating a user device registered to a user account using the DRM server (para [0152]-[0153], [0259]-[0260], [0354]-[0356] - "Transactions occur between two repositories (one acting as a server), between a repository and a document playback platform (e.g. for executing or viewing), between a repository and a credit server or between a repository and an authorization server"; "server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right"); (g) receiving a request to access the identified piece of digital content from the user device using the DRM server, where the request includes the ticket token (para [0017]-[0018], [0191], [0353]-[0358] - "play transaction is a request to use the contents of a work"; "The server and requester read and write the blocks of data as requested by the player according to the transmission protocol"); (h) associating an electronic ticket with the user account based upon the ticket token received from the user device using the DRM server (para [0152]-[0153], [0162], [0356] - "an instance of a usage right may specify a bank account, a digital ticket, etc"); (i) sending the electronic ticket and access information for the identified piece of digital content associated with the electronic ticket to the user device using the DRM server (para [0017]-[0018], [0353]-[0358] - "requester sends the server a message to initiate the play transaction. This message indicates the work to be played, the version of the play right to be used in the transaction, the identity of the player being used, and the file data for the work"; "server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right"); and (j) expiring the ticket token using the DRM server (para [0199]-[0200], [0513] - "The play right can have various restrictions on its use. It could have a ticket that limits the number of times it is used. It could have internal restrictions that limit its functionality. It could have time restrictions that invalidate the right after a period of time or a period of use").

As to claim 36, Stefik further teaches a method further comprising authenticating a user device registered to a user account and associating an electronic ticket with the user account based upon the ticket token received from the user device (para [0152]-[0153], [0191], [0354]-[0356]).

As to claim 37, Stefik further teaches a method wherein the request for a ticket token contains at least one field selected from the group consisting of: a customer identifier, a content identifier, a merchant identifier, an account link identifier, a license identifier, a stream identifier, a transaction identifier, and a price (para [0108], [0346] - "unique identifier for the work in the repository"; "requester identification, and the transaction ID").

As to claim 38, Stefik further teaches a method further comprising generating a new electronic ticket to represent a new purchase (para [0220], [0306], [0521]).

As to claim 39, Stefik further teaches a method further comprising sending the electronic ticket to the merchant server (para [0083]-[0084], [0138], [0215]).

As to claim 40, Stefik further teaches a method wherein the request to access the identified piece of digital content further includes identification of a user account to which the user device is registered (para [0152], [0162], [0277]).

As to claim 41, Stefik further teaches a method further comprising associating the electronic ticket with the user account (para [0083], [0152], [0162]).

As to claim 42, Stefik further teaches a method further comprising associating the user device with the user account (para [0017]-[0018], [0103], [0152]).

As to claim 43, Stefik further teaches a method wherein the request to access the identified piece of digital content further includes information that identifies the characteristics or capabilities of the user device (para [0127], [0355]-[0356]).

As to claim 44, Stefik further teaches a method further comprising validating the ticket token (para [0212], [0354]-[0356]).

As to claim 45, Stefik further teaches a method further comprising enforcing rules on the playback of content based upon the ticket token (para [0088], [0120], [0354]-[0356]).

As to claim 46, Stefik further teaches a method further comprising enforcing rules on the playback of content based upon device characteristics (para [0017]-[0018], [0355]-[0356]).

As to claim 47, Stefik further teaches a method wherein the access information includes at least one piece of information selected from the group consisting of: a top level index of the digital content, an identifier for the digital content, and cryptographic data that can be used to access the digital content (para [0108] - "unique identifier for the work in the repository").

(See Next Continuation Box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box V.2. Citations and explanations:

As to claim 48, Stefik teaches a system comprising: (a) a merchant server (para [0093], [0098] - "credit server"); (b) a DRM server (para [0017]-[0018] - "server device processes the request to access the digital work based on the usage right specified in the request"); (c) a content server (para [0084], [0093]-[0094] - "Digital works are stored in repositories"; "When in the server mode, the repository will be receiving and processing access requests to digital works"); and (d) a user device (para [0017]-[0018], [0353], [0358] - "requestor device"; "requester plays the work contents, using the player"); (e) wherein the merchant server, DRM server, content server, and user device are configured to communicate via a network (para [0136], [0152], [0547] - "external interface means 1206 may also provide network connectivity"); (f) wherein the merchant server is configured to authenticate a user account maintained by the merchant server (para [0152]-[0153] - "user account"; "credit server will also need to have security and authentication functionality"); (g) wherein the user device is configured to request a piece of digital content from the merchant server (para [0017]-[0018], [0093] - "requestor device to request access to a digital work"); (h) wherein the DRM server is configured to authenticate the merchant server (para [0093], [0129], [0153], [0277] - "credit server will also need to have security and authentication functionality"); (i) wherein the merchant server is configured to request a ticket token associated with the requested piece of content from the DRM (para [0083]-[0084], [0093], [0108], [0191], [0215] - "The digital work remains securely in Repository 1 until a request for access is received"; "unique identifier for the work in the repository"); (j) wherein the merchant server is configured to provide the ticket token to the user device (para [0017], [0093], [0191], [0354]-[0356] - "For a digital ticket the player would be a digital ticket agent"; "requester sends the server a message to initiate the play transaction"); (k) wherein the DRM server is configured to authenticate the user device as being registered to a user account maintained by the DRM server (para [0152]-[0153], [0259]-[0260], [0354]-[0356] - "Transactions occur between two repositories (one acting as a server), between a repository and a document playback platform (e.g. for executing or viewing), between a repository and a credit server or between a repository and an authorization server"; "server checks the validity of the player identification"); (l) wherein the user device is configured to provide the ticket token to the DRM server (para [0017]-[0018], [0353]-[0358] - "server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right"); (m) wherein the DRM server is configured to associate an electronic ticket with the user account to which the user device is registered (para [0152]-[0153], [0162], [0356] - "an instance of a usage right may specify a bank account, a digital ticket, etc"); and (n) wherein the DRM server is configured to provide the user device with access information for the requested digital content and the electronic ticket (para [0017]-[0018], [0353]-[0358] - "For a digital ticket the player would be a digital ticket agent"; "requester sends the server a message to initiate the play transaction. This message indicates the work to be played, the version of the play right to be used in the transaction, the identity of the player being used, and the file data for the work"; "The server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right").

As to claim 49, Stefik teaches a method for enabling playback of digital content on a user device using an electronic ticket and an ticket token, the method comprising: (a) authenticating a user account maintained by a merchant server using the merchant server (para [0152]-[0153] - "user account"; "credit server will also need to have security and authentication functionality"); (b) requesting a piece of digital content from the merchant server using a user device (para [0017]-[0018], [0093] - "requestor device to request access to a digital work"); (c) authenticating the merchant server using a DRM server (para [0093], [0129], [0153], [0277] - "credit server will also need to have security and authentication functionality"); (d) requesting a ticket token associated with the requested piece of content from the DRM server using the merchant server (para [0083]-[0084], [0093], [0108], [0191], [0215] - "The digital work remains securely in Repository 1 until a request for access is received"; "unique identifier for the work in the repository"); (e) providing the ticket token to the user device using the merchant server (para [0017], [0093], [0354]-[0356] - "For a digital ticket the player would be a digital ticket agent"; "requester sends the server a message to initiate the play transaction"); (f) authenticating the user device as being registered to a user account maintained by the DRM server using the DRM server (para [0152]-[0153], [0259]-[0260], [0354]-[0356] - "Transactions occur between two repositories (one acting as a server), between a repository and a document playback platform (e.g. for executing or viewing), between a repository and a credit server or between a repository and an authorization server"; "server checks the validity of the player identification"); (g) providing the ticket token to the DRM server using the user device (para [0017]-[0018], [0353]-[0358] - "server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right"); (h) associating an electronic ticket with the user account to which the user device is registered using the DRM server (para [0152]-[0153], [0162], [0356] - "an instance of a usage right may specify a bank account, a digital ticket, etc"); and (i) providing the user device with the electronic ticket and access information for the requested digital content using the DRM server (para [0017]-[0018], [0353]-[0358] - "For a digital ticket the player would be a digital ticket agent"; "requester sends the server a message to initiate the play transaction. This message indicates the work to be played, the version of the play right to be used in the transaction, the identity of the player being used, and the file data for the work"; "The server checks the validity of the player identification and the compatibility of the player identification with the player specification in the right").

(See Next Continuation Box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box V.2. Citations and explanations:

As to claim 50, Stefik teaches a machine readable medium containing processor instructions, where execution of the instructions by a processor causes the processor to perform a process comprising: (a) authenticating a merchant server (para [0093], [0129], [0153], [0277] - "credit server will also need to have security and authentication functionality"); (b) receiving a request for a ticket token from the merchant server where the request identifies a piece of digital content (para [0083]-[0084], [0093], [0108], [0215] - "The digital work remains securely in Repository 1 until a request for access is received"; "unique identifier for the work in the repository"); (c) generating a ticket token that expires after a predetermined time period (para [0199]-[0200], [0513] - "The Expiration-Date specifies the moment at which the usage right ends"; " time restrictions that invalidate the right after a period of time or a period of use"); (d) associating the ticket token with an electronic ticket (para [0191], [0215], [0292] - "token can be used to simplify the expression of what rights to keep behind"); (e) sending the ticket token to the merchant server for delivery to a user device (para [0017], [0093], [0354]-[0356] - "requester sends the server a message to initiate the play transaction"); (f) authenticating a user device registered to a user account (para [0152]-[0153], [0259]-[0260], [0354]-[0356] - "Transactions occur between two repositories (one acting as a server), between a repository and a document playback platform (e.g. for executing or viewing), between a repository and a credit server or between a repository and an authorization server"; "server checks the validity of the player identification:"); (g) receiving a request to access the identified piece of digital content from the user device, where the request includes the ticket token (para [0017]-[0018], [0353]-[0358] - "play transaction is a request to use the contents of a work"; "The server and requester read and write the blocks of data as requested by the player according to the transmission protocol"); (h) associating an electronic ticket with the user account based upon the ticket token received from the user device (para [0152]-[0153], [0162], [0356] - "an instance of a usage right may specify a bank account, a digital ticket, etc"); (i) sending the electronic ticket and access information for the identified piece of digital content associated with the electronic ticket to the user device (para [0017]-[0018], [0353]-[0356] - "requester sends the server a message to initiate the play transaction. This message indicates the work to be played, the version of the play right to be used in the transaction, the identity of the player being used, and the file data for the work"); and (j) expiring the ticket token (para [0199]-[0200], [0513] - "The play right can have various restrictions on its use. It could have a ticket that limits the number of times it is used. It could have internal restrictions that limit its functionality. It could have time restrictions that invalidate the right after a period of time or a period of use").

Claims 1-50 have industrial applicability as defined by PCT Article 33(4), because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 53684P/D579	**FOR FURTHER ACTION** see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US05/25845	International filing date (*day/month/year*) 21 July 2005 (21.07.2005)	(Earliest) Priority Date (*day/month/year*) 21 July 2004 (21.07.2004)
Applicant DIVXNETWORKS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**
   a. With regard to the **language**, the international search was carried out on the basis of:
      ☒ the international application in the language in which it was filed.
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. ☐ **Certain claims were found unsearchable** (See Box No. II)
3. ☐ **Unity of invention is lacking** (See Box No. III)
4. With regard to the **title**,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,
   ☐ the text is approved as submitted by the applicant.
   ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,
   a. the figure of the **drawings** to be published with the abstract is Figure No. 4
      ☒ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/25845

Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

A media player (105) manages and controls rights to playback of media content (403) by the media player, which stores, during a registration (401) process in which the media player need not be connected to an external computing system, information (402) used by the media player to control playback. A minimal amount of the media player's memory is used to store the information used to control playback.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/25845

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **G06F 12/14**(2006.01);**G06F 17/30**(2006.01);**H04L 9/00**(2006.01)
H04N 7/16(2006.01)

USPC: 705/59;726/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 705/59; 726/26

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,509,070 (SCHULL) 16 April 1996 (16.04.1996), column 8, line 31 to column 9, line 53; column 10, lines 26-58; column 14 line 56 to column 15, line 35).	1-24

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
05 February 2007 (05.02.2007)	10 MAY 2007
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Matthew Heneghan Telephone No. (571)272-2100

DEBORAH A. THOMAS
PARALEGAL SPECIALIST

Form PCT/ISA/210 (second sheet) (April 2005)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
WESLEY W. MONROE
CHRISTIE, PARKER & HALE, LLP
P.O. BOX 7068
PASADENA, CA 91109-7068

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	10 MAY 2007
Applicant's or agent's file reference 53684P/D579	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US05/25845	21 July 2005 (21.07.2005)	21 July 2004 (21.07.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC: **G06F 12/14**(2006.01);**G06F 17/30**(2006.01);**H04L 9/00**(2006.01) H04N 7/16(2006.01)
USPC: 705/59;726/26

Applicant

DIVXNETWORKS, INC.

1. This opinion contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☒	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(*b*) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450	05 February 2007 (05.02.2007)	Matthew Heneghan DEBORAH A. THOMAS PARALEGAL SPECIALIST
Facsimile No. (571) 273-3201		Telephone No. (571)272-2100 Dat

Form PCT/ISA/237 (cover sheet) (April 2005)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/25845

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/25845

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims NONE	YES
	Claims 1-24	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-24	NO
Industrial applicability (IA)	Claims 1-24	YES
	Claims NONE	NO

2. Citations and explanations:

Claims 1-24 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry. The invention may be in the area of protected copyrighted media from unauthorized usage.

Claims 1-24 lack novelty under PCT Article 33(2) as being anticipated by US 5509070 (SCHULL).
As per claims 1-5 and 17, Schull discloses a distribution system wherein registration information including a guard (a password) is provided for producing configuration information; received back is the password, keys, and key ID for key lookup and a check against the password for key retrieval (see column 8, line 31 to column 9, line 53; column 10, lines 26-58).
As per claim 6-16 and18-24, Schull discloses a key lookup according to the ID for media retrieval (see column 14, line 56 to column 15, line 35).

Claims 1-24 lack an inventive step under PCT Article 33(3) as being obvious over US 5509070 (SCHULL) for the reasons stated regarding the lack of novelty.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/25845

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/25845

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

In the preamble of claim 1, "randomly-generated" should read as "randomly generating"

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on November 14, 2016 at or before 11:59 p.m. Pacific Time under the Rules of 37 C.F.R. 1.8.

/Katrina Lee/
Katrina Lee

Appl No.	: 14/970,412	Confirmation No. 5115
Applicant	: Sonic IP, Inc.	
Filed	: December 15, 2015	
Title	: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	
TC/A.U.	: 2434	
Examiner	: Abiy Getachew	
Docket No.	: D1-02359A.CON2	
Customer No.	: 71897	

INFORMATION DISCLOSURE STATEMENT § 1.97(c)

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2400 E. Katella, Suite 1050
Anaheim, CA 92806
November 14, 2016

Commissioner

In compliance with the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, and in accordance with the provisions in the MPEP §§ 609 and 707.05(b), enclosed is FORM PTO/SB/08A/B with a listing of references that are known to applicant. Copies of each of the references listed under "Foreign Patent Documents" and "Non-Patent Literature Documents" are enclosed.

It is respectfully requested that these references be considered in the examination of this application and identified on the list of references cited on the patent issuing on this application. Applicant also requests that an initialed copy of said FORM PTO/SB/08A/B be entered in the application file, and returned to the Applicant with the next official communication from the Office in accordance with MPEP § 609.

The $180 processing fee will be paid via credit card. If there are any other fees due in connection with this filing, the Commissioner is authorized to charge Deposit Account 50-4407. Please show our docket number with any charge to the Deposit Account.

Respectfully submitted,

KPPB LLP

/Jason D. Wolfe/
Jason D. Wolfe
Registration No. 71,327
949.852.0000

JDW/kl
Enclosure(s)

DivX Exhibit 2005
Page 2005 - 443
IPR2020-00558

Electronic Patent Application Fee Transmittal

Application Number:	14970412
Filing Date:	15-Dec-2015
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Filer:	Jason Daniel Wolfe/Katrina Lee
Attorney Docket Number:	D1-02359A.CON2

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	27492987
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Jason Daniel Wolfe/Katrina Lee
Filer Authorized By:	Jason Daniel Wolfe
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	14-NOV-2016
Filing Date:	15-DEC-2015
Time Stamp:	23:41:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	02359ACON2part3sb08.pdf	140416 3d025ce7d93cd4bb9c294b10d6181797f1af1e40	no	5

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Foreign Reference	EP2617192A4.pdf	3295088 8f621e2e022633ed5098d573f5242550eb929031	no	4
Warnings:					
Information:					
3	Foreign Reference	EP2716048A0.pdf	465099 ec9e5962d4e4cdb9faf8e7b9c38c76afcec81313	no	1
Warnings:					
Information:					
4	Foreign Reference	EP2721826A1.pdf	456932 e5a899ff8a9737989f4479ed5be701921d43ecb2	no	1
Warnings:					
Information:					
5	Foreign Reference	EP2486517A4.pdf	11151288 12bf5ac963f40eb2265336f3c2428c6950e1aa4b	no	276
Warnings:					
Information:					
6	Foreign Reference	EP2751990A0.pdf	4842491 bbbf9053396abe0ba90be214bebbc72d2a39b26f	no	98
Warnings:					
Information:					
7	Foreign Reference	WO2014145901A1.pdf	5945074 ecc3072505b0d8abc86b1817938e64f7ff179eb1	no	36
Warnings:					
Information:					
8	Foreign Reference	EP2807821A2.pdf	458193 6bd69d3c941c10ac2b4439d179f87bf8a500b518	no	1
Warnings:					
Information:					

9	Foreign Reference	WO2014193996A2.pdf	7394049 a593a2efcac5612b4b75c67c289bf0cd2664003a	no	54
Warnings:					
Information:					
10	Foreign Reference	WO2014193996A3.pdf	3537382 841696ceba0c1c205a38246cb63d12beee255a7d	no	4
Warnings:					
Information:					
11	Foreign Reference	WO2015031982A1.pdf	6136164 1987b3edca89176927bf478d898f2e0417bcb6c5	no	45
Warnings:					
Information:					
12	Non Patent Literature	IBMClosesCryptolopesUnit3pgs.pdf	92881 a3763902d0f629bf938570c83c95ec1ac6f99752	no	3
Warnings:					
Information:					
13	Non Patent Literature	InformationTechnology144962part1.pdf	20472220 7c789cb7428bcbc46a695199a92ede9ee547847a	no	241
Warnings:					
Information:					
14	Non Patent Literature	InformationTechnology144962Thirdpart2.pdf	19115508 0b6a18cd861fb0987ab4db61c69ceeed46076859	no	242
Warnings:					
Information:					
15	Non Patent Literature	InformationTechnology144962Thirdpart3.pdf	18142700 60ee7796431c21ff05d2eab543f309616d3c5dad	no	241
Warnings:					
Information:					

16	Non Patent Literature	OpenDMLAVIFileFormatExtentions42pgs.pdf	4772528 da8ba8990846ff9f48cdee29765bb74dc4fa1e13	no	42
Warnings:					
Information:					
17	Non Patent Literature	BroadQTheUltimateHome1pg.pdf	360669 dbdd1453854fafbf6d7b70c992dd589cbe2657b8	no	1
Warnings:					
Information:					
18	Foreign Reference	cloakwareprotectingdigitalcontent10pgs.pdf	10107323 d0bf7986e905e44afe3c3764192501939a0ab7b0	no	10
Warnings:					
Information:					
19	Other Reference-Patent/App/Search documents	esr118551035.pdf	9459580 c9cf3b62d84d5c6b25f416be44aca9a0663521e3	no	10
Warnings:					
Information:					
20	Other Reference-Patent/App/Search documents	esr118552371.pdf	9574333 632f3006d2bb23c149c2eaf9d3402d5462357cb9	no	9
Warnings:					
Information:					
21	Other Reference-Patent/App/Search documents	esp09759600.pdf	12582641 3f0f48de417cea60db8ad3e6d875d560ea336356	no	11
Warnings:					
Information:					
22	Non Patent Literature	federalcomputerwktoolspeeds5pgs.pdf	662194 5c40e97566e5a48807cbe5a648dfce5d06143a27	no	5
Warnings:					
Information:					

23	Non Patent Literature	griffithwifiplanet3pgs.pdf	522805 998b523dcae7f0b7273998e816a621d2c45cc42b	no	3
Warnings:					
Information:					
24	Non Patent Literature	HTTPLiveStreamingOverview38pgs.pdf	566921 3bb05237476ce95b42f8c706dc7956029c94b881	no	38
Warnings:					
Information:					
25	Non Patent Literature	ibmandmicrosoftMultimediaProgramming100pgs.pdf	12960223 5a8f443ef11f0d67f9a8e6f363c7133a0bf576e6	no	100
Warnings:					
Information:					
26	Non Patent Literature	InformationWeekFrontEnd3pgs.pdf	242464 a217fed48214bac767ed68e39159096ae6c6a482	no	3
Warnings:					
Information:					
27	Other Reference-Patent/App/Search documents	PCTUS2014030747iprp.pdf	8327507 acfed93ca291d05ab67e3ba5843e8e273302afff	no	6
Warnings:					
Information:					
28	Other Reference-Patent/App/Search documents	pctus2011068276iprp.pdf	17631984 8b6ba12209d3f013cffc9ea091d77439314f4429	no	23
Warnings:					
Information:					
29	Other Reference-Patent/App/Search documents	iprppctus2013043181.pdf	14219707 6325b1ee5d1004b382eea2c71220c4ca351f274f	no	11
Warnings:					
Information:					

30	Other Reference-Patent/App/Search documents	pctus2014039852iprp.pdf	3872549 ca07da81d65acfbeeccb264c55e8e6149a957544	no	8
Warnings:					
Information:					
31	Other Reference-Patent/App/Search documents	pctus200887999israndwo.pdf	5089464 f96ed7e93e53a2a3b419d7a0c77e1c7386ab87f9	no	6
Warnings:					
Information:					
32	Other Reference-Patent/App/Search documents	pctus0946588israndwo.pdf	660575 a36bb22d8b7a76adf7cb41af1ee04eabb3851526	no	7
Warnings:					
Information:					
33	Other Reference-Patent/App/Search documents	pctus2004041667israndwo.pdf	505379 85cfef315f6314565be98184bb98ebe9c6ad764d	no	6
Warnings:					
Information:					
34	Other Reference-Patent/App/Search documents	pctus2007063950israndwo.pdf	5675701 66bfd501572ebe5d175635295da1518fcfe3cc96	no	9
Warnings:					
Information:					
35	Other Reference-Patent/App/Search documents	isrwoPCTUS2008083816.pdf	683822 6de5daf5f794b3f0e00ade0cab03e489ba55a074	no	7
Warnings:					
Information:					
36	Other Reference-Patent/App/Search documents	pctus2010056733israndwo.pdf	910873 25ad0d1b643ad4a64f1aba1687633d2e8ae9316f	no	9
Warnings:					
Information:					

37	Other Reference-Patent/App/Search documents	pctus2013043181israndwo.pdf	1228686 ddd9fc5bbd88c6c892057e43d236bfb55e6d5358	no	12
Warnings:					
Information:					
38	Other Reference-Patent/App/Search documents	pctus2014039852israndwo.pdf	5481368 24221ff2304586bae40f3160005bca51a0768590	no	11
Warnings:					
Information:					
39	Other Reference-Patent/App/Search documents	pctus2011066927israndwo.pdf	20543615 f972d4cff8460daf2a3b7777ff261385b65efa8d	no	14
Warnings:					
Information:					
40	Other Reference-Patent/App/Search documents	pctus2011067167israndwo.pdf	1160661 a2ef2df3ffb25156275bc9d9840ae4f4e7adccee	no	11
Warnings:					
Information:					
41	Other Reference-Patent/App/Search documents	pctus2011068276israndwo.pdf	12131256 f684d04685be239a15445d49b5a2c7593eb6e3c1	no	24
Warnings:					
Information:					
42	Other Reference-Patent/App/Search documents	pctus2013020572israndwo.pdf	1074521 6c8e54923f95b283ac2073a6903250ccda306f2b	no	10
Warnings:					
Information:					
43	Other Reference-Patent/App/Search documents	pctus2005025845israndwo.pdf	1011093 cda671090b0a47026d1e0b16c63dee717f2e4e16	no	8
Warnings:					
Information:					

44	Non Patent Literature	ITSInternational1pg.pdf	109906 f3b846dd5d68875ef1b8f9d2eb9bf48a0492668d	no	1
Warnings:					
Information:					
45	Non Patent Literature	KISSDP5001pg.pdf	263098 2ee4ba277b56c2344ee618280949a5048a7a355a	no	1
Warnings:					
Information:					
46	Non Patent Literature	lifehackerboxqueue.pdf	185662 6a233965802823c338f8ff0e24c630207a3973bc	no	2
Warnings:					
Information:					
47	Non Patent Literature	LinksysWirelessBMediaAdapter5pgs.pdf	2340694 1552fb4c1ec456dcea236f6d48ab6bd4ecb9ee08	no	5
Warnings:					
Information:					
48	Non Patent Literature	LinksysKISSDP5002pgs.pdf	243599 f063e7ee9d0686fdaf54b1d334318d5a7f468f63	no	2
Warnings:					
Information:					
49	Non Patent Literature	LinksysEnjoyYourDigitalMusic.pdf	697265 2e6b9cb20c64fe26511784a8bb128d312c3dc5d3	no	4
Warnings:					
Information:					
50	Non Patent Literature	MicrosoftChapter8MultimediaFileFormats.pdf	13900421 2ced8348010bbc1f21145dc62e13a12b92fa4856	no	23
Warnings:					
Information:					

51	Non Patent Literature	MicrosoftWindowsFrequentlyAskedQuestions.pdf	2775279 0b9cd9abb12148af7cf1e013465b1334b47cffba	no	6
Warnings:					
Information:					
52	Non Patent Literature	MicrosoftXPMediaCenterEdition2005Features4pgs.pdf	484139 2414464fbd46cfea87c0a83f8520ba4471141bc2	no	4
Warnings:					
Information:					
53	Non Patent Literature	MicrosoftMediaPlatformv11.pdf	106336 8509a617b35142bdf148d3f2c3612cb1acd222ec	no	2
Warnings:					
Information:					
54	Non Patent Literature	MicrosoftMediaPlatformv25.pdf	80263 8227dfbdb0d91f158ae257a43c440d042e827c0a	no	2
Warnings:					
Information:					
55	Transmittal Letter	02359acon2part3xtml.pdf	101664 7d9b7e2f71e1c67a99bbaae7c9ec627700a902bc	no	2
Warnings:					
Information:					
56	Other Reference-Patent/App/Search documents	esr08870152.pdf	9523070 0ddcbb776c3641851c5104c2ef9d424d3ad8ebd2	no	10
Warnings:					
Information:					
57	Fee Worksheet (SB06)	fee-info.pdf	30945 89e2da65987f56a46a8d372edd73a458bde7ac1c	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	294508268	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T 5
		ANONYMOUS, "Method for the encoding of a compressed video sequence derived from the same video sequence compressed at a different bit rate without loss of data", ip.com, ip.com number: IPCOM000008165D, May 22, 2002, pp. 1-9.	
		AUTHOR UNKNOWN, "Blu-ray Disc - Blu-ray Disc - Wikipedia, the free encyclopedia", printed October 30, 2008 from http://en.wikipedia.org/wiki/Blu-ray_Disc, 11 pgs.	
		AUTHOR UNKNOWN, "Blu-ray Movie Bitrates Here - Blu-ray Forum", printed October 30, 2008 from http://forum.blu-ray.com/showthread.php?t=3338, 6 pgs.	
		AUTHOR UNKNOWN, "MPEG-4 Video Encoder: Based on International Standard ISO/IEC 14496-2", Patni Computer Systems, Ltd., Publication date unknown, 15 pgs.	
		AUTHOR UNKNOWN, "O'Reilly - 802.11 Wireless Networks: The Definitive Guide, Second Edition", printed October 30, 2008 from http://oreilly.com/catalog/9780596100520, 2 pgs.	
		AUTHOR UNKNOWN, "Tunneling QuickTime RTSP and RTP over HTTP", Published by Apple Computer, Inc.: 1999 (month unknown), 6 pages	
		AUTHOR UNKNOWN, "Turbo-Charge Your Internet and PC Performance", printed October 30, 2008 from Speedtest.net - The Global Broadband Speed Test, 1 pg.	
		AUTHOR UNKNOWN, "When is 54 Not Equal to 54? A Look at 802.11a, b and g Throughput", printed October 30, 2008 from www.oreillynet.com/pub/a/wireless/2003/08/08/wireless_throughput.html, 4 pgs.	
		AUTHOR UNKNOWN, "White paper, The New Mainstream Wirless LAN Standard", Broadcom Corporation, July 2003, 12 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		BLASIAK, PH.D. "Video Transrating and Transcoding: Overview of Video Transrating and Transcoding Technologies," Ingenient Technologies, TI Developer Conference, August 6-8, 2002, 22 pgs.	
		CASARES ET AL., "Simplifying Video Editing Using Metadata", DIS2002, pp.157-166.	
		CN200880127596.4, "Fourth Office Action", 05/06/2014, 8	
		DEUTSCHER, "IIS Transform Manager Beta - Using the MP4 to Smooth Task", Retrieved from: https://web.archive.org/web/20130328111303/http://blog.johndeutscher.com/category/smooth-streaming, Blog post of April 17, 2010, 14 pgs.	
		GANNES, "The Lowdown on Apple's HTTP Adaptive Bitrate Streaming", GigaOM, June 10, 2009, 12 pgs.	
		GARG ET AL., "An Experimental Study of Throughput for UDP and VoIP Traffic in IEEE 802.11b Networks", Wireless Communications and Networkings, March 2003, pp. 1748-1753	
		GHOSH, "Enhancing Silverlight Video Experiences with Contextual Data", Retrieved from: http://msdn.microsoft.com/en-us/magazine/ee336025.aspx, 15 pgs.	
		INLET TECHNOLOGIES, "Adaptive Delivery to iDevices", 2 pages.	
		INLET TECHNOLOGIES, "Adaptive delivery to iPhone 3.0", 2 pgs.	
		INLET TECHNOLOGIES, "HTTP versus RTMP", 3 pages.	
		INLET TECHNOLOGIES, "The World's First Live Smooth Streaming Event: The French Open", 2 pages.	
		KASPAR ET AL., "Using HTTP Pipelining to Improve Progressive Download over Multiple Heterogeneous Interfaces", IEEE ICC proceedings, 2010, 5 pgs.	
		KIM, "MPEG-2 ES/PES/TS/PSI", Kyung-Hee University, October 4, 2010, 66 pages	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		KOZINTSEV ET AL., "Improving last-hop multicast streaming video over 802.11", Workshop on Broadband Wireless Multimedia, October 2004, pp. 1-10	
		KURZKE ET AL., "Get Your Content Onto Google TV", Google, Retrieved from: http://commondatastorage.googleapis.com/io2012/presentations/live%20to%20website/1300.pdf, 58 pgs.	
		LANG, "Expression Encoder, Best Practices for live smooth streaming broadcasting", Microsoft Corporation, 20 pgs.	
		LEVKOV, "Mobile Encoding Guidelines for Android Powered Devices", Adobe Systems Inc., Addendum B, source and date unknown, 42 pgs.	
		LONG ET AL., "Silver: Simplifying Video Editing with Metadata", Demonstrations, CHI 2003: New Horizons, pp. 628-629.	
		MSDN, "Adaptive streaming, Expression Studio 2.0", 2 pgs.	
		NELSON, "Smooth Streaming Deployment Guide", Microsoft Expression Encoder, August 2010, 66 pgs.	
		NELSON, "Arithmetic Coding + Statistical Modeling = Data Compression: Part 1 - Arithmetic Coding", Doctor Dobb's Journal, February 1991, printed from http://www.dogma.net/markn/articles/arith/part1.htm; printed July 2, 2003, 12 pgs.	
		NELSON, "IBM's Cryptolopes", Complex Objects in Digital Libraries Course, Spring 2001, Retrieved from http://www.cs.odu.edu/~mln/teaching/unc/inls210/?method=display&pkg_name=cryptolopes.pkg&element_name=cryptolopes.ppt, 12 pages.	
		NOBORU, "Play Fast and Fine Video on Web! codec", Co.9 No.12, 12/01/2003, 178-179	
		NOE, "Matroska File Format (under construction!)", Retrieved from the Internet: URL:http://web.archive.org web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19], 6/24/2007, 1-51	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		NOE, "AVI File Format", http://www.alexander-noe.com/video/documentation/avi.pdf, pp. 1-26.	
		NOE, "Definitions", http://www.alexander-noe.com/video/amg/definitions.html, April 11, 2006	
		OOYALA, "Widevine Content Protection", Ooyala Support Center for Developers. Ooyala, Inc., 2013. June 3, 2013. http://support.ooyala.com/developers/documentation/concepts/player_v3_widevine_integration.html	
		OZER, "The 2012 Encoding and Transcoding Buyers' Guide", Streamingmedia.com, Retrieved from: http://www.streamingmedia.com/Articles/Editorial/Featured-Articles/The-2012-Encoding-and-Transcoding-Buyers-Guide-84210.aspx, 2012, 8 pgs.	
		PANTOS, "HTTP Live Streaming, draft-pantos-http-live-streaming-10", IETF Tools, October 15, 2012, Retrieved from: http://tools.ietf.org/html/draft-pantos-http-live-streaming-10, 37 pgs.	
		PANTOS, "HTTP Live Streaming: draft-pantos-http-live-streaming-06", Published by the Internet Engineering Task Force (IETF), March 31, 2011, 24 pages	
		PAPAGIANNAKI ET AL., "Experimental Characterization of Home Wireless Networks and Design Implications", INFOCOM 2006, 25th IEEE International Conference of Computer Communications, Proceedings, April 2006, 13 pgs.	
		PHAMDO, "Theory of Data Compression", printed from http://www.data-compression.com/theoroy.html on October 10, 2003, 12 pgs.	
		RGB NETWORKS, "Comparing Adaptive HTTP Streaming Technologies", November 2011, Retrieved from: http://btreport.net/wp-content/uploads/2012/02/RGB-Adaptive-HTTP-Streaming-Comparison-1211-01.pdf, 20 pgs.	
		SCHULZRINNE et al., "Real Time Streaming Protocol 2.0 (RTSP): draft-ietfmmusic-rfc2326bis-27", MMUSIC Working Group of the Internet Engineering Task Force (IETF), March 9, 2011, 296 pages (presented in two parts)	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/970,412
	Filing Date	Dec 15, 2015
	First Named Inventor	Michael George Kiefer
	Art Unit	2434
	Examiner Name	Abiy Getachew
	Attorney Docket Number	D1-02359A.CON2

		SIGLIN, "HTTP Streaming: What You Need to Know", streamingmedia.com, 2010, 15 pages.	
		SIGLIN,"Unifying Global Video Strategies, MP4 File Fragmentation for Broadcast, Mobile and Web Delivery", Nov. 16, 2011, 16 pgs.	
		TAN et al., "Video transcoding for fast forward/reverse video playback", IEEE ICIP, 2002, pp. I-713 to I-716.	
		UNKNOWN, "AVI RIFF File Reference (Direct X 8.1 C++ Archive)", printed from http://msdn.microsoft.com/archive/en-us/dx81_c/directx_cpp/htm/aviriifffilereference.asp?fr...on March 6, 2006, 7 pgs.	
		UNKNOWN, "Entropy and Source Coding (Compression)", TCOM 570, 1999-9, pp. 1-22	
		WANG ET AL., "Image Quality Assessment: From Error Visibility to Structural Similarity", IEEE Transactions on Image Processing, April 2004, Vol. 13, No. 4, pp. 600-612	
		WU et al., "Next Generation Mobile Multimedia Communications: Media Codec and Media Transport Perspectives", In China Communications, October 2006, pp. 30-44	
		ZAMBELLI, "IIS Smooth Streaming Technical Overview", Microsoft Corporation, March 2009.	

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on November 14, 2016 at or before 11:59 p.m. Pacific Time under the Rules of 37 C.F.R. 1.8.

/Katrina Lee/
Katrina Lee

Appl No.	: 14/970,412	Confirmation No. 5115
Applicant	: Sonic IP, Inc.	
Filed	: December 15, 2015	
Title	: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	
TC/A.U.	: 2434	
Examiner	: Abiy Getachew	
Docket No.	: D1-02359A.CON2	
Customer No.	: 71897	

INFORMATION DISCLOSURE STATEMENT § 1.97(c)

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2400 E. Katella, Suite 1050
Anaheim, CA 92806
November 14, 2016

Commissioner

In compliance with the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, and in accordance with the provisions in the MPEP §§ 609 and 707.05(b), enclosed is FORM PTO/SB/08A/B with a listing of references that are known to applicant. Copies of each of the references listed under "Non-Patent Literature Documents" are enclosed.

It is respectfully requested that these references be considered in the examination of this application and identified on the list of references cited on the patent issuing on this application. Applicant also requests that an initialed copy of said FORM PTO/SB/08A/B be entered in the application file, and returned to the Applicant with the next official communication from the Office in accordance with MPEP § 609.

The $180 processing fee will be paid via credit card. If there are any other fees due in connection with this filing, the Commissioner is authorized to charge Deposit Account 50-4407. Please show our docket number with any charge to the Deposit Account.

Respectfully submitted,

KPPB LLP

/Jason D. Wolfe/
Jason D. Wolfe
Registration No. 71,327
949.852.0000

JDW/kl
Enclosure(s)

DivX Exhibit 2005
Page 2005 - 462
IPR2020-00558

Electronic Patent Application Fee Transmittal

Application Number:	14970412
Filing Date:	15-Dec-2015
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Filer:	Jason Daniel Wolfe/Katrina Lee
Attorney Docket Number:	D1-02359A.CON2

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	27493046
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Jason Daniel Wolfe/Katrina Lee
Filer Authorized By:	Jason Daniel Wolfe
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	14-NOV-2016
Filing Date:	15-DEC-2015
Time Stamp:	23:55:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	02359ACON2part5sb08.pdf	142830 730f008c302d52b90be321dfddee177637440329	no	5

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Non Patent Literature	methodfortheencodingofacompressed9pgs.pdf	441110 4d733eeda4c30241e6847db434ee5fd3ab2cc4d2	no	9
Warnings:					
Information:					
3	Non Patent Literature	bluraydiscwiki.pdf	5108190 997342115b7796803fd6d799dfad8b47bec799f9	no	11
Warnings:					
Information:					
4	Non Patent Literature	bluraybitrateshere.pdf	3396761 9ca98aaf167c2d52d8a6c7680fbd8ebe7d7cc3dc	no	6
Warnings:					
Information:					
5	Non Patent Literature	mpeg4videoencoder15pgs.pdf	3492896 0fe276d88096bbdcdef0d5c88177191f38e01082	no	15
Warnings:					
Information:					
6	Non Patent Literature	oreilly80211wireless.pdf	872510 bfecd4d376cd84f92f8e0bc3cd47165d683abcd5	no	2
Warnings:					
Information:					
7	Non Patent Literature	tunnelingquicktimertsp.pdf	141302 d32330b10c6c7452903320d3f2ef3d36599dbd8f	no	6
Warnings:					
Information:					
8	Non Patent Literature	turbocharge.pdf	99358 735ba6c6a5dd173fe54dce85e2fc8ffabfbfe7ce	no	1
Warnings:					
Information:					

9	Non Patent Literature	whenis54notequal.pdf	2508147 05e01f82758ff86364374f79859029f883909684	no	4
Warnings:					
Information:					
10	Non Patent Literature	whitepaperthenewmainstream.pdf	8351208 3653b5eb56e773917bf23225af2af3a4e5e70015	no	12
Warnings:					
Information:					
11	Non Patent Literature	blasiak22pgs.pdf	7991343 0ebfcc8beb9a946424c41e1180c7c652f6b230b2	no	22
Warnings:					
Information:					
12	Non Patent Literature	casaresetal157-166.pdf	3819544 16c45889f09db8c8d46125fe8cdee63fbcdc0791	no	10
Warnings:					
Information:					
13	Non Patent Literature	cn20088012759644thofficeaction.pdf	11694845 30ce294e302f1619fc8f24f673c0c9de1be5b3bb	no	8
Warnings:					
Information:					
14	Non Patent Literature	deutscheriistransformmanager14pgs.pdf	1064216 b83a17b889436461eb1a8b3b5c1e91653a098534	no	14
Warnings:					
Information:					
15	Non Patent Literature	gannes12pgs.pdf	2277215 bd085b6f52ddd6779e63c2c49ecf920eb814d2c0	no	12
Warnings:					
Information:					

16	Non Patent Literature	gargetal1748-1753.pdf	3927185 053867c41dbdc6fc8efb04647883345509b9a244	no	6
Warnings:					
Information:					
17	Non Patent Literature	ghosh15pgs.pdf	2021075 5355105b977c947e0d34fac050140c69a5b6e631	no	3
Warnings:					
Information:					
18	Non Patent Literature	inlet-adaptivedeliverytoidevices.pdf	387855 eb5c3e9c72cf50c6975eadb9735757fed24f4b01	no	2
Warnings:					
Information:					
19	Non Patent Literature	inletadaptivedeliveriphone30-2pgs.pdf	460973 c898acadd4149bb8972ba8e894658267411 29506	no	2
Warnings:					
Information:					
20	Non Patent Literature	inlet-httpversusrtmp3pgs.pdf	254318 ccd9074668c471629f8239c26d804c7fb0287e20	no	3
Warnings:					
Information:					
21	Non Patent Literature	inlet-worldsfirstlivestreamfrenchopenpdf2pgs.pdf	733061 092d685f2ba064e91804ff68b2d9627a47409154	no	2
Warnings:					
Information:					
22	Non Patent Literature	kasparetal5pgs.pdf	505693 e415272deadeb9a46b794ed1e56d5e81a8177f9b	no	5
Warnings:					
Information:					

23	Non Patent Literature	kim66pgs.pdf	5391862 8d6114854425709818 81a9c91107345a62e3c38e	no	66
Warnings:					
Information:					
24	Non Patent Literature	kurzkeetal58pgs.pdf	3439341 7bf8851b5ee0fa70835d41787146d06cb17b85c2	no	58
Warnings:					
Information:					
25	Non Patent Literature	kozintsevetal10pgs.pdf	4227940 d89c41e888771c821ae6ecf3a068477f2aaa0bbf	no	10
Warnings:					
Information:					
26	Non Patent Literature	lang20pgs.pdf	1664576 8e4be64d6928827cd4a9110e6eaf1f7cdc900bf3	no	20
Warnings:					
Information:					
27	Non Patent Literature	Levkov42pgs.pdf	4815822 388507bf8c8707050cf91c8e56ea207463da6ce6	no	42
Warnings:					
Information:					
28	Non Patent Literature	longetal628-629.pdf	2370466 02e1bc920eccb2818bff31e0f997cddcfde5219e	no	2
Warnings:					
Information:					
29	Non Patent Literature	msdnadaptivestreaming.pdf	40336 b3ea89e82172acfd365398e43af3d9131add30c2	no	2
Warnings:					
Information:					

30	Non Patent Literature	NelsonSmoothStreamingDeploymentGuide66pgs.pdf	3816551 e02ba19322fbaf90f6a9b091869cd58f95bd7368	no	66
Warnings:					
Information:					
31	Non Patent Literature	nelsonarithmeticcoding.pdf	12036354 4801d316e14ef967d7b5da9832323e533a8a4c53	no	12
Warnings:					
Information:					
32	Non Patent Literature	nelsonIBMsCryptolopes.pdf	150141 e63d53a0f674c49d120457eab4f37cccf65ca41a	no	12
Warnings:					
Information:					
33	Non Patent Literature	noboru.pdf	1513736 0f6780eddb9ce8e25de98c26d6a24979fdf3e213	no	2
Warnings:					
Information:					
34	Non Patent Literature	Noepp1-51.pdf	6071452 1c1e90e364b5b353827dae6b22291a91d1004a9c	no	51
Warnings:					
Information:					
35	Non Patent Literature	NoeAVIFileFormatpp1-26.pdf	499295 9953a7906855332f24d831b57af66455cacdf91e	no	26
Warnings:					
Information:					
36	Non Patent Literature	noedefinitions.pdf	515064 c444baa1fbc7b8e8eae2563d9a52f068e34d858f	no	2
Warnings:					
Information:					

37	Non Patent Literature	ooyalaWidevineContentProtection.pdf	593081 ff69b042a5a09fbf525625a39b43a79c6df7981a	no	7
Warnings:					
Information:					
38	Non Patent Literature	ozer8pgs.pdf	1154277 d66ebeff99ff5d490a06b9a3b1c0ac6dabe3ab54	no	8
Warnings:					
Information:					
39	Non Patent Literature	pantos24pgs.pdf	410257 467886b5b78debcb1421fb1c82209322b8162fc3	no	24
Warnings:					
Information:					
40	Non Patent Literature	pantos37pgs.pdf	70810 ea69d853ab13a16a542a43709c307906e046bc54	no	37
Warnings:					
Information:					
41	Non Patent Literature	papagiannakietal.pdf	5549862 4c5192c785471cc5629c48da40f7204099cb9f32	no	13
Warnings:					
Information:					
42	Non Patent Literature	phamdo12pgs.pdf	1671273 45dadad05efe79b965727f067e80daa36f9f0d7f	no	12
Warnings:					
Information:					
43	Non Patent Literature	rgbnetworks20pgs.pdf	1980675 e5d8a46580503a0914baff0cf2123afdd466a59c	no	20
Warnings:					
Information:					

44	Non Patent Literature	part1of2schulzrinneretal296pgs.pdf	9343468 09de7434075de1c81f990096f181cff0243688bf	no	148
Warnings:					
Information:					
45	Non Patent Literature	part2of2schulzrinneretal296pgs.pdf	8285328 8e4e3a2d1d5f39151b3cc3caf564f6ecf2fe94f6	no	148
Warnings:					
Information:					
46	Non Patent Literature	siglin15pgs.pdf	2663610 93c7e149307f5462ba29e78e2a3ef8cccfb81208	no	15
Warnings:					
Information:					
47	Non Patent Literature	siglin16pgs.pdf	290993 52de0de2621f85937a61e34b80e7e78f85ee83d7	no	16
Warnings:					
Information:					
48	Non Patent Literature	tanetali-713-i-716.pdf	605790 359c91679ddb60a4df3a1e5b1781d34854860508	no	4
Warnings:					
Information:					
49	Non Patent Literature	avirifffilereference.pdf	764464 adc6ffefa5a7615fab7005f786f14b1b16d29353	no	7
Warnings:					
Information:					
50	Non Patent Literature	EntropyandSourceCodingpp1-22.pdf	4832916 e0b0d84a420ec7a4ca16008a95ee40fbf65d7e77	no	22
Warnings:					
Information:					

51	Non Patent Literature	wangetal600-612.pdf	12285194 98abb6923f91f6b8bc4d03a8589b7492ce65f163	no	13
Warnings:					
Information:					
52	Non Patent Literature	wuetal30-44.pdf	531664 90d5c50477ab9105fec69b5430cc905fefece34e	no	15
Warnings:					
Information:					
53	Non Patent Literature	zambelli17pgs.pdf	1097767 5d15b1473580d7a5a447c0324d8b91e36fc42a96	no	17
Warnings:					
Information:					
54	Transmittal Letter	02359acon2part5xtml.pdf	101627 b0b27a2be58617fb3991498a09bfdb5fd26443df	no	2
Warnings:					
Information:					
55	Fee Worksheet (SB06)	fee-info.pdf	30944 042c80fa27dbc1b1b3ebb138c98a2b663d9ee0c1	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	158508571		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,412	12/15/2015	Michael George Kiefer	D1-02359A.CON2

CONFIRMATION NO. 5115

POA ACCEPTANCE LETTER

71897
KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

OC000000087003810

Date Mailed: 11/07/2016

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/28/2016.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sleutchit/

DivX Exhibit 2005
Page 2005 - 475
IPR2020-00558

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/970,412
Filing Date	December 15, 2015
First Named Inventor	Michael George Kiefer
Title	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
Art Unit	2434
Examiner Name	Abiy Getachew
Attorney Docket Number	D1-02359A.CON2

SIGNATURE of Applicant or Patent Practitioner

Signature	/Jason D. Wolfe/	Date (Optional)	Oct. 28, 2016
Name	Jason D. Wolfe	Registration Number	71,327
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014, OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
14/970,412	December 15, 2015

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 71897

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Sonic IP, Inc.

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	
Name	Trevor Renfield		
Title	Treasurer, Sonic IP, Inc.		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) D1-02359A.CON2

In re Application of: Sonic IP, Inc.

Application No.: 14/970,412

Filed: December 15, 2015

For: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information

The applicant, Sonic IP, Inc., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 8,909,922 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 71,327

/Jason D. Wolfe/ — Signature
Oct. 28, 2016 — Date

Jason D. Wolfe — Typed or printed name

Attorney of Record — Title
949.852.0000 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	14970412
Filing Date:	15-Dec-2015
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Filer:	Jason Daniel Wolfe/Katrina Lee
Attorney Docket Number:	D1-02359A.CON2

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
		Total in USD ($)		**160**

Electronic Acknowledgement Receipt

EFS ID:	27361456
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Jason Daniel Wolfe/Katrina Lee
Filer Authorized By:	Jason Daniel Wolfe
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	28-OCT-2016
Filing Date:	15-DEC-2015
Time Stamp:	19:20:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	103116INTEFSW19205300
Deposit Account	504407
Authorized User	Katrina Lee

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		02359acon2amendment.pdf	158399 6178ffd92039c947ba2560bc77e64700ad284d0d	yes	15
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	8	
	Applicant Arguments/Remarks Made in an Amendment		9	15	
Warnings:					
Information:					
2	Power of Attorney	02359acon2powerofattorney.pdf	343114 63a031ad161db96e818ebbb6e146ceb7e8517354	no	2
Warnings:					
Information:					
3	Terminal Disclaimer Filed	02359acon2terminaldisclaimer.pdf	105199 3051ba82ddba854a09594d2d7dc7865d224b5a39	no	1
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30933 0440d1e6d589b8a902d5060142da9d38e9b94b6f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	637645		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on October 28, 2016 at or before 11:59 p.m. Pacific Time under the Rules of 37 CFR § 1.8.

/Katrina Lee/
Katrina Lee

Appl No.	: 14/970,412	Confirmation No. 5115
Applicant	: Sonic IP, Inc.	
Filed	: December 15, 2015	
Title	: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	
TC/A.U.	: 2434	
Examiner	: Abiy Getachew	
Docket No.	: D1-02359A.CON2	
Customer No.	: 71897	

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2400 E. Katella, Suite 1050
Anaheim, CA 92806
October 28, 2016

Commissioner:

In response to the Office Action mailed July 28, 2016, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

DivX Exhibit 2005
Page 2005 - 484
IPR2020-00558

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A playback device, comprising:

a processor;

non-volatile memory containing a client application comprising a set of machine readable instructions;

wherein the ~~client application~~ set of machine readable instructions configures the processor to:

register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system;

request adaptive bitrate streaming of protected video from the content distribution system using the bound cryptographic data;

obtain a top level index file from the content distribution server, wherein the top level index file identifies a plurality of alternative streams of protected video that have been protected by a common set of frame keys generated by a source encoder, and wherein the top level index file comprises (i) an encrypted copy of a first key from the common set of frame keys and (ii) a set of DRM information that identifies protected portions of the alternative streams of protected video and frame keys to utilize in accessing the protected portions of the alternative streams;

obtain a first portion of protected video from a given stream of protected video from the content distribution system, wherein the first portion of protected video is protected by the first key from the common set of frame keys;

DivX Exhibit 2005
Page 2005 - 485
IPR2020-00558

decrypt the encrypted copy of the first key using the bound cryptographic data;

decrypt the first portion of protected video using the decrypted first key according to the obtained set of DRM information;

playback the decrypted first portion of video from the given stream;

obtain a second portion of protected video from the given stream of protected video from the content distribution system, wherein the second portion of protected video is protected by a second key from the common set of frame keys;

obtain an encrypted copy of the second key from the common set of frame keys from the source encoder, wherein the encrypted copy of the second key has been generated by the source encoder;

decrypt the encrypted copy of the second key using the bound cryptographic data;

decrypt the second portion of protected video using the decrypted second key according to the obtained set of DRM information; and

playback the decrypted second portion of video from the given stream.

2. (Currently Amended) The playback device of claim 1, wherein:

the alternative streams of protected video are encoded at different maximum bitrates using different sets of encoding parameters; and

the ~~client application~~ set of machine readable instructions further configures the processor to decode the encoded frames of video prior to playback of the obtained portions of video.

3. (Original) The playback device of claim 1, wherein:

the plurality of alternative streams of protected video are contained in container files that comprise at least one header that includes information that describes the encoding of the stream of protected video ; and

DivX Exhibit 2005
Page 2005 - 486
IPR2020-00558

the top level index file identifies the location of the at least one header within each container file.

4. (Currently Amended) The playback device of claim 3, wherein:

each container file containing one of the alternative streams of protected video further comprises an index; and

the ~~client application~~ set of machine readable instructions further configures the processor to :

request at least a portion of an index from the given container file;

identify the portion of the given container file containing a specific portion of video using the index; and

request the identified portion of the given container file.

5. (Original) The playback device of claim 3, wherein the container files are Matroska container files.

6. (Original) The playback device of claim 5, wherein the common set of frame keys is stored in a common DRM Header element contained within a Tracks element within each of the Matroska container files containing the alternative streams of protected video .

7. (Original) The playback device of claim 1, wherein the common set of frame keys is part of a frame key table that is common to each of the plurality of alternative streams.

8. (Currently Amended) The playback device of claim 1, wherein the ~~client application~~ set of machine readable instructions further configures the processor to securely receive a content key, and wherein the common set of frame key is encrypted.

DivX Exhibit 2005
Page 2005 - 487
IPR2020-00558

9. (Currently Amended) The playback device of claim 8, wherein the ~~client application~~ set of machine readable instructions further configures the processor to:

obtain the content key that can be used to decrypt the encrypted common set of frame keys; and

decrypt the common set of frame keys using the obtained content key.

10. (Currently Amended) The playback device of claim 8, wherein the ~~client application~~ set of machine readable instructions configures the processor to obtain a common DRM Header element by requesting a Tracks element from a Matroska container file identified in the top level index file.

11. (Original) The playback device of claim 5, wherein:

each Mastroska container file containing an alternative stream of protected video further comprises an index contained within a Cues element; and

the ~~client application~~ set of machine readable instructions further configures the processor to request a portion of video from one of the Matroska container files by configuring the processor to:

request at least a portion of a Cues element from a Matroska container file containing one of the alternative streams of protected video ;

identify a portion of the Matroska container file containing a specific portion of video using at least one CueTrackPosition element within the Cues element; and

request the portion of the Matroska container file identified by the at least one CueTrackPosition element.

12. (Original) The playback device of claim 11, wherein the index comprises a plurality of CueTrackPosition elements that identify the location of a plurality of Cluster elements within the Matroska container file.

DivX Exhibit 2005
Page 2005 - 488
IPR2020-00558

13. (Original) The playback device of claim 12, wherein:

each Cluster element contains a plurality of BlockGroup elements including encoded portions of video ;

a CueTrack Position element indexes each Cluster element; and

each CueTrackPosition element includes the size of the Cluster element that it indexes.

14. (Currently Amended) The playback device of claim 11, wherein:

each of the Matroska container files containing an alternative stream of protected video includes a set of BlockGroup elements that each contain a DRMInfo element and an encrypted frame of video, where the DRMInfo element is a part of the set of DRM information for each of the Matroska container files ; and

the ~~client application~~ set of machine readable instructions further configures the processor to decrypt encrypted video frames of the obtained portions of video using the decrypted copy of the common set of frame keys by configuring the processor to:

obtain a BlockGroup containing an encrypted frame of video;

parse the BlockGroup element to obtain a DRMInfo element indicating at least a portion of the encrypted frame of video that is encrypted using a frame key from the common set of frame keys;

decrypt the at least one encrypted portion of the encrypted frame of video using the identified frame key; and

decode the frame of video.

DivX Exhibit 2005
Page 2005 - 489
IPR2020-00558

15. (New) A method comprising:

registering a playback device with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system using the playback device;

requesting adaptive bitrate streaming of protected video from the content distribution system using the bound cryptographic data and using the playback device;

obtaining a top level index file from the content distribution server using the playback device, wherein the top level index file identifies a plurality of alternative streams of protected video that have been protected by a common set of frame keys generated by a source encoder, and wherein the top level index file comprises (i) an encrypted copy of a first key from the common set of frame keys and (ii) a set of DRM information that identifies protected portions of the alternative streams of protected video and frame keys to utilize in accessing the protected portions of the alternative streams;

obtaining a first portion of protected video from a given stream of protected video from the content distribution system using the playback device, wherein the first portion of protected video is protected by the first key from the common set of frame keys;

decrypting the encrypted copy of the first key using the bound cryptographic data and the playback device;

decrypting the first portion of protected video using the decrypted first key according to the obtained set of DRM information using the playback device;

playing back the decrypted first portion of video from the given stream using the playback device;

obtaining a second portion of protected video from the given stream of protected video from the content distribution system using the playback device, wherein the second portion of protected video is protected by a second key from the common set of frame keys;

DivX Exhibit 2005
Page 2005 - 490
IPR2020-00558

obtaining an encrypted copy of the second key from the common set of frame keys from the source encoder using the playback device, wherein the encrypted copy of the second key has been generated by the source encoder;

decrypting the encrypted copy of the second key using the bound cryptographic data and using the playback device;

decrypting the second portion of protected video using the decrypted second key according to the obtained set of DRM information and using the playback device; and

playing back the decrypted second portion of video from the given stream using the playback device.

DivX Exhibit 2005
Page 2005 - 491
IPR2020-00558

REMARKS/ARGUMENTS

Summary of the Amendments

No claims have been amended. New claim 15 has been added. Claims 1-6 and 8-20 are amended. Claim 7 is canceled. Applicant submits that the new claim recites no new matter and is supported in the specification and claims as originally filed. Specific support can be found in paragraphs [0066] to [0072] and in Figure 1D with associated paragraph [0081].

Summary of the Office action

The Office action dated April 17, 2015 contained the following rejections and objections:

- claims 1-14 have been interpreted under 35 U.S.C. § 112(f) or pre-AIA 35 U.S.C. § 112, sixth paragraph to invoke means for or step plus functional claim language;
- claims 1-14 are rejected under 35 U.S.C. § 112(b) or 35 U.S.C. § 112 (pre-AIA), second paragraph, as being indefinite;
- claims 1-14 are rejected under 35 U.S.C. § 101 statutory double patenting double as claiming the same invention as that of claims 1-14 of prior U.S. Patent No. 8,909,922; and
- claims 1-14 would be allowed if the current rejection set forth in this office action is overcome.

APPLICANT INITIATED INTERVIEW SUMMARY

Applicant's Representative Jason Wolfe (71,327) conducted a brief Examiner interview with Examiner Abiy Getachew on October 21, 2016. During the interview, Applicant's Representatives discussed the outstanding rejections under statutory double patenting and the interpretation of the claims as reciting means plus function language. Applicant's Representative discussed the possibility of Examiner's Amendments and/or supplemental amendments as necessary to address the interpretation of the claims as

reciting means plus function language. In addition, Applicant's Representative discussed the differences between the pending claims and cited prior U.S. Patent No. 8,909,922. The Examiner mentioned the need to file a terminal disclaimer. No agreement was reached with regards patentability to the claims. Applicant's representative thank the Examiner for the interview.

Claim Interpretation 35 USC § 112(f)

Claims 1-14 have been interpreted under 35 U.S.C. § 112(f) or pre-AIA 35 U.S.C. § 112, sixth paragraph to invoke means for or step plus functional claim language. The Office action states on page 3 that: "at least the claim limitation of **" ... client application configures the processor to ... ;** register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system ... "has/have been interpreted under 35 U.S. C. 112(f) or pre-AIA 35 U.S. C. 112, sixth paragraph". The Office action further states that:

> "A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or pre- AIA 35 U.S.C. 112, sixth paragraph limitation of a control security ***client application configures the processor to ... ; register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system at figure 1A of the drawings filed, and paragraphs: 0014, 0016, 0025 of the specification as filed.***"

Applicant respectfully disagrees with this interpretation as substantial support for the claim language can be found in FIG. 1D and associated paragraphs [0081] and [0082] describing PLAYBACK DEVICES. However, in order to expedite prosecution, Applicant has amended claim 1 to more closely to recite that the memory is "non-volatile" and the client application comprises "a set of machine readable instructions" that configure the processor to perform the recited limitations per the text of paragraph [0081] As described in paragraphs [0081] and [0082] (emphasis added via underline):

> **[0081]** Referring back to FIG. 1A, the illustrated playback devices include personal computers **18** and mobile phones **20**. In other embodiments, playback devices can include consumer electronics devices such as DVD players, Blu-ray players, televisions, set top boxes, video game consoles, tablets, and other devices that are capable of playing back protected media stored on a content

DivX Exhibit 2005
Page 2005 - 493
IPR2020-00558

> distribution server using adaptive bitrate streaming. A playback device in accordance with an embodiment of the invention is illustrated in FIG. 1D. The playback device is implemented on a processing platform **20** including a processor **20** *a*, volatile memory**20** *b*, and non-volatile memory (or other non-volatile storage) **20** *c*. The non-volatile memory **20** *c* contains a client application **20** *d*, which includes machine readable instructions that can be utilized to configure the processor to register with a content distribution system to obtain cryptographic data **20** *e* bound to the playback device. The playback device can then use the bound cryptographic data **20** *e* to request adaptive bitrate streaming of protected content. As is discussed further below, the alternative streams of protected content utilized to perform adaptive bitrate streaming are protected using common cryptographic information. Once the client application **20** *d*has obtained the common cryptographic information, which can be a time consuming and/or computationally intensive process, the playback device can use the same cryptographic information to access content in any of the alternative streams of protected content within a single instance of a title.
>
> **[0082]** Although a specific architecture for a playback device is shown in FIG. 1D any of a variety of architectures can be utilized that enable playback devices to request portions of the top level index file and the container files in accordance with embodiments of the invention.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the interpretation of claims 1-14 under 35 U.S.C. § 112(f) or pre-AIA 35 U.S.C. § 112, sixth paragraph as invoking means for or step plus functional claim language.

Rejections under 35 U.S.C. § 112

Claims 1-14 are rejected under 35 U.S.C. § 112(b) or 35 U.S.C. § 112 (pre-AIA), second paragraph, as being indefinite. The Office action states that several limitations invoke 35 U.S.C. § 112(f) or pre-AIA 35 U.S. C. § 112, sixth paragraph. The Office action then states that: "the written description fails to clearly link or associate the disclosed structure, material, or acts to the claimed function such that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function". Applicant respectfully disagrees with this interpretation and has provided arguments above with respect to the interpretation of the claims under 35 U.S.C. § 112(f) or pre-AIA 35 U.S. C. § 112, sixth paragraph. Applicant respectfully disagrees with these rejections. However, in order to expedite prosecution, Applicant has amended the claims to address the interpretations discussed above.

DivX Exhibit 2005
Page 2005 - 494
IPR2020-00558

Per the comments above, Applicant submits that paragraphs [0081] and [0082] describing "PLAYBACK DEVICES" and associated FIG. 1D sufficiently describe examples of devices that performs the claimed functions. An example of such a playback device is illustrated in FIG. 1D, which includes the claimed playback device, non-volatile memory, and client application. FIG. 1D is reproduced herein for reference:

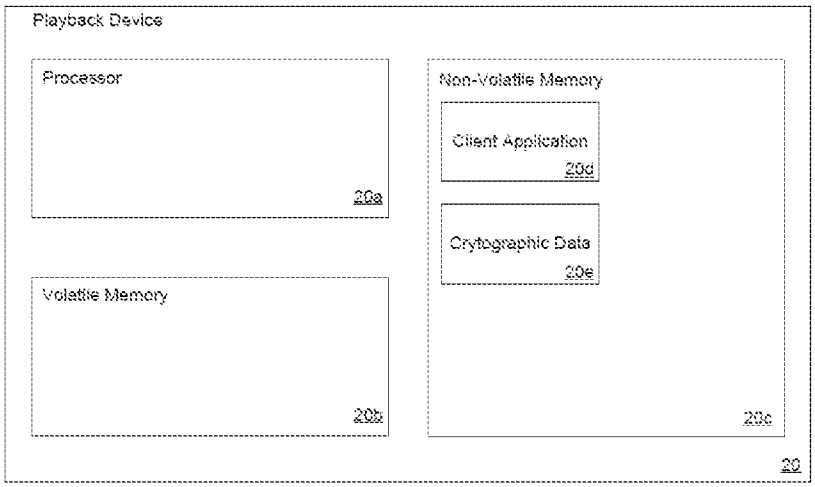


FIG. 1D

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-14 under 35 U.S.C. § 112(b) or 35 U.S.C. § 112 (pre-AIA), second paragraph, as being indefinite due to the included amendments and the support in the specification for the claimed playback device and functions.

DivX Exhibit 2005
Page 2005 - 495
IPR2020-00558

Double Patenting Rejection

Claims 1-14 are rejected under 35 U.S.C. § 101 statutory double patenting as claiming the same invention as that of claims 1-14 of prior U.S. Patent No. 8,909,922. The Office action compares language from U.S. Patent No. 8,909,922 to the pending claims. Applicant respectfully disagrees with this rejection and notes that the claims of the instant application include several features not found in U.S. Patent No. 8,909,922. Specifically, the following limitations are not in the claims of U.S. Patent No. 8,909,922:

> "…
>
> register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system;
>
> request adaptive bitrate streaming of protected video from the content distribution system using the bound cryptographic data;
>
> …
>
> obtain a second portion of protected video from the given stream of protected video from the content distribution system, wherein the second portion of protected video is protected by a second key from the common set of frame keys;
>
> obtain an encrypted copy of the second key from the common set of frame keys from the source encoder, wherein the encrypted copy of the second key has been generated by the source encoder;
>
> decrypt the encrypted copy of the second key using the bound cryptographic data;
>
> decrypt the second portion of protected video using the decrypted second key according to the obtained set of DRM information; and
>
> playback the decrypted second portion of video from the given stream."

The "register" and "request" features have no equivalent in the U.S. Patent No. 8,909,922 patent. The "second portion" and "second key" feature relate to the technique of key rotation. Key rotation provides for additional hardware-bound security that the claims of the U.S. Patent No. 8,909,922 patent do not recite. Per the

DivX Exhibit 2005
Page 2005 - 496
IPR2020-00558

discussion of this application with the Examiner, Applicant will file a terminal disclaimer with this Amendment and Response.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-14 under 35 U.S.C. § 101 statutory double patenting due to the plain differences in the claimed features between the instant claims and the claims of the U.S. Patent No. 8,909,922.

Allowable Subject Matter

The Office action states that claim 1-14 would be allowed if the current rejection set forth in this office action is overcome. Applicant respectfully submits that the amended claims are in condition for allowance in light of the amendments and remarks submitted above.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is in condition for allowance. Accordingly, reconsideration of the application and allowance of the claims are respectfully requested. Although the present paper may include a combination of alterations to the application or claims, or characterizations of claim scope or referenced art, Applicants are not conceding that previously pending claims in this application are not patentable over the cited references. Rather, any alterations and/or characterizations are made to strictly facilitate prosecution of this application. As such, reviewers of this or any parent, child, or related prosecution history shall not reasonably infer that Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

Applicants have submitted amendments and arguments believed to be sufficient to overcome all of the outstanding rejections. Consequently, Applicants have not advanced every argument for the allowability of the claims over the references of record. As such, Applicants do not acquiesce to any of the Examiner's statements or characterizations not specifically traversed. If the Examiner should have any remaining

DivX Exhibit 2005
Page 2005 - 497
IPR2020-00558

questions or objections, a telephone interview to discuss and resolve these issues is respectfully requested.

The Commissioner is authorized to charge any fee under 37 CFR 1.16 and 1.17 which may be required during the **entire pendency** of the application to Deposit Account No. 50-4407. Please show our docket number with any transaction to the Deposit Account.

Respectfully submitted,
KPPB LLP

By /Jason D. Wolfe/
Jason D. Wolfe
Registration No. 71,327
949.852.0000

JDW/kl

DivX Exhibit 2005
Page 2005 - 498
IPR2020-00558

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/970,412	Filing Date 12/15/2015	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **10/28/2016**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 15	Minus	** 20	= 0	X $80 =	0
Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $420 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
LASHAWN MORGAN

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	14/970,412	KIEFER ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 28 October, 2016	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:

/CRYSTAL QUEEN/

Technology Center: PLRC

Telephone: _____

U.S. Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,412	12/15/2015	Michael George Kiefer	D1-02359A.CON2	5115

71897 7590 07/28/2016

KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

EXAMINER	
GETACHEW, ABIY	

ART UNIT	PAPER NUMBER
2434	

NOTIFICATION DATE	DELIVERY MODE
07/28/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PAIR@KPPB.COM

Office Action Summary	Application No. 14/970,412	Applicant(s) KIEFER ET AL.	
	Examiner ABIY GETACHEW	Art Unit 2434	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/15/2016*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-14* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-14* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *12/15/2016* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

2. This is a Non-Final Office Action in response to the communication filed on December 15, 2015.

- Claims 1-14 have been examined.

Drawings

3. The drawings filed on December 15, 2015 are acceptable for examination proceedings.

CLAIM INTERPRETATION – 35 USC 112th f

4. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.
>
> The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:
>
> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

5. Use of the word "means" (or "step for") in a claim with functional language creates a rebuttable presumption that the claim element is to be treated in accordance with 35 U.S.C. § 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that

§ 112(f) (pre-AIA § 112, sixth paragraph) is invoked is rebutted when the function is recited with sufficient structure, material, or acts within the claim itself to entirely perform the recited function.

Absence of the word "means" (or "step for") in a claim creates a rebuttable presumption that the claim element is not to be treated in accordance with 35 U.S.C. § 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that § 112(f) (pre-AIA § 112, sixth paragraph) is not invoked is rebutted when the claim element recites function but fails to recite sufficiently definite structure, material or acts to perform that function.

Claim elements in this application that use the word "means" (or "step for") are presumed to invoke § 112(f) except as otherwise indicated in an Office action. Similarly, claim elements that do not use the word "means" (or "step for") are presumed not to invoke § 112(f) except as otherwise indicated in an Office action.

6. **It is in the opinion of the examiner** that claims 1 - 14 invoke means for or step plus functional claim language. In for example, claim #1, that at least the claim limitation of "…**client application configures the processor to** …; register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system …" has/have been interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because it uses/they use a generic placeholder "…**client application configures the processor to** …; register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system …".coupled with

functional language, "register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system; request adaptive bitrate streaming of protected video from the content distribution system using the bound cryptographic data; obtain a top level index file from the content distribution server" without reciting sufficient structure to achieve the function. Furthermore, the generic placeholder is not preceded by a structural modifier: **client application configures the processor to** …; register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph limitation of a control security ***client application configures the processor to …; register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system at figure 1A of the drawings filed, and paragraphs: 0014, 0016, 0025 of the specification as filed.***

If applicant wishes to provide further explanation or dispute the examiner's interpretation of the corresponding structure, applicant must identify the corresponding structure with reference to the specification by page and line number, and to the drawing, if any, by reference characters in response to this Office action.

If applicant does not intend to have the claim limitation(s) treated under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112 , sixth paragraph, applicant may amend the claim(s) so that it/they will clearly not invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, or present a sufficient showing that the claim recites/recite sufficient structure, material, or acts for performing the claimed function to preclude application of 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

For more information, see MPEP § 2173 *et seq.* and *Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 FR 7162, 7167 (Feb. 9, 2011).

Appropriate action required.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-14 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

8. As to claims 1-14, elements such as "…**client application configures the processor to** …" are limitations that invoke 35 U.S.C. 112(f) or pre-AIA 35

U.S.C. 112, sixth paragraph. However, the written description fails to clearly link or associate the disclosed structure, material, or acts to the claimed function such that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function. Furthermore, the network entity recited in claim 1 does not necessarily imply a hardware device. In view of this understanding, the network elements can broadly be interpreted as software alone.

Applicant may:

(a) Amend the claim so that the claim limitation will no longer be interpreted as a limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it clearly links or associates the corresponding structure, material, or acts to the claimed function without introducing any new matter (35 U.S.C. 132(a)); or

(c) State on the record where the corresponding structure, material, or acts are set forth in the written description of the specification and linked or associated to the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Appropriate action required.

Double Patenting

9. Claims 1-14 rejected under 35 U.S.C. 101 as claiming the same invention as that of claims *1,2,3,4,6,7,9,10,11,12,13,14* of prior U.S. Patent No. US 8,909,922. This is a statutory double patenting rejection

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process... may obtain a patent therefor..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the claims that are directed to the same invention so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

10. *Regarding claims 1-14 of the current application claims 1,2,3,4,6,7,9,10,11,12,13,14 of the Patent No.*: US 8,909,922 *teaches*:

Instant Application	Copending Patent No. 8,909,922
1. A playback device, comprising: a processor; memory containing a	1. A playback device, comprising: a processor; memory containing a

client application; wherein the client application configures the processor to: register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system; request adaptive bitrate streaming of protected video from the content distribution system using the bound cryptographic data; obtain a top level index file from the content distribution server, wherein the top level index file identifies a plurality of alternative streams of protected video that have been protected by a common set of frame keys generated by a source encoder, and wherein the top level index file comprises (i) an encrypted copy of a first key from the common set of frame keys and (ii) a set of DRM information that identifies protected portions of the alternative streams of protected video and frame keys to utilize in accessing the protected portions of the alternative streams; obtain a first portion of protected video from a given stream of protected video from the content distribution system, wherein the first portion of protected video is protected by the first key from the common set of frame keys; decrypt the encrypted copy of the first key using the bound cryptographic data; decrypt the first portion of protected video using the decrypted first key according to the obtained set of DRM information; playback the decrypted first portion of video from the given stream; obtain a second	client application; wherein the client application configures the processor to: obtain a top level index file identifying a plurality of separate container files each containing one of a plurality of alternative streams of protected video, wherein each of the alternative streams of protected video includes video frames that are encrypted using a common set of frame keys comprising a plurality of different frame keys, wherein each of the container files containing the alternative streams of protected video comprises (i) an encrypted copy of the common set of frame keys and (ii) a set of DRM information that identifies encrypted portions of the video frames and frame keys to utilize in accessing the encrypted portions of the video frames, and wherein the set of DRM information in each of the plurality of alternative streams of protected video references the same common set of frame keys; obtain an encrypted copy of the common set of frame keys from a given container file and decrypt the encrypted copy of the common set of frame keys using a content key; obtain a set of DRM information from the given container file; obtain portions of protected video from the given container file containing one of the plurality of alternative streams of protected video; decrypt encrypted video frames from the obtained portions of video using the decrypted copy of the common set of frame keys according to the obtained set of DRM information; and playback the obtained portions of video.

portion of protected video from the given stream of protected video from the content distribution system, wherein the second portion of protected video is protected by a second key from the common set of frame keys; obtain an encrypted copy of the second key from the common set of frame keys from the source encoder, wherein the encrypted copy of the second key has been generated by the source encoder; decrypt the encrypted copy of the second key using the bound cryptographic data; decrypt the second portion of protected video using the decrypted second key according to the obtained set of DRM information; and playback the decrypted second portion of video from the given stream.	
2.The playback device of claim 1, wherein: the alternative streams of protected video are encoded at different maximum bitrates using different sets of encoding parameters; and the client application further configures the processor to decode the encoded frames of video prior to playback of the obtained portions of video.	2. The playback device of claim 1, wherein: the alternative streams of protected video are encoded at different maximum bitrates using different sets of according parameters and the client application further configures the processor to decode the encoded frames of video prior to playback of the obtained portions of video.
4. The playback device of claim 3, wherein: each container file containing one of the alternative streams of protected video further	6. The playback device of claim 1, wherein: each container file containing one of the alternative streams of protected video further

comprises an index; and the client application further configures the processor to: request at least a portion of an index from the given container file; identify the 3ortion of the given container file containing a specific portion of video using the index and request the identified portion of the given container file.	comprises an index; and the client application further configures the processor to request at least a portion of an index from the given container file; identify the portion of the given container file containing a specific portion of video using the index; and request the identified portion of the given container file.
5. The playback device of claim 3, wherein the container files are Matroska container files.	7. The playback device of claim 1, wherein the container files are Matroska container files.
6. The playback device of claim 5, wherein the common set of frame keys is stored in a common DRM Header element contained within a Tracks element within each of the Matroska container files containing the alternative streams of protected video.	8. The playback device of claim 7, wherein the encrypted copy of the common set of frame keys is stored in a common DRM Header element contained within a Tracks element within each of the Matroska container files containing the alternative streams of protected video.
7. The playback device of claim 1, wherein the common set of frame keys is part of a frame key table that is common to each of the plurality of alternative streams.	4. The playback device of claim 1, wherein the common set of frame keys is part of a frame key table that is common to each of the plurality of alternative streams.
8. The playback device of claim 1, wherein the client application further configures the processor to securely	6. The playback device of claim 1, wherein: the client application further configures the processor to securely

receive a content key, and wherein the common set of frame key is encrypted.	receive the content key
9. The playback device of claim 8, wherein the client application further configures the processor to: obtain the content key that can be used to decrypt the encrypted com set of frame keys; and decrypt the common set of frame keys using the obtained content key.	9. The playback device of claim 10, wherein the client application further configures the processor to: obtain the content key that can be used to decrypt the encrypted copy of the set of frame keys stored within the common DRM Header element; and decrypt the encrypted copy of the set of frame keys stored within the common DRM Header element using the obtained content key.
10. The playback device of claim 8, wherein the client application configures the processor to obtain a common DRM Header element by requesting a Tracks element from a Matroska container file identified in the top level index file.	10. The playback device of claim 10, wherein the client application configures the processor to obtain the common DRM Header element by requesting a Tracks element from one of the Matroska container files identified in the top level index file.
11. The playback device of claim 5, wherein: each Mastroska container file containing an alternative stream of protected video further comprises an index contained within a Cues element; and the client application further configures the processor to request a portion of video from one of the Matroska container files by configuring the processor to: request at least a portion of a Cues element from a Matroska container file containing one of the alternative streams of protected video ; identify a portion of the Matroska container file containing a specific portion of video using at least one CueTrackPosition	11.The playback device of claim 13, wherein: each Mastroska container file containing an alternative stream of protected video further comprises an index contained within a Cues element; and the client application further configures the processor to request a portion of video from one of the Matroska container files by configuring the processor to: request at least a portion of a Cues element from a Matroska container file containing one of the alternative streams of protected video; identify a portion of the Matroska container file containing a specific portion of video using at least one CueTrackPosition element within the Cues element; and

element within the Cues element; and request the portion of the Matroska container file identified by the at least one CueTrackPosition element.	request the portion of the Matroska container file identified by the at least one CueTrackPosition element.
12. The playback device of claim 11, wherein the index comprises a plurality of CueTrackPosition elements that identify the location of a plurality of Cluster elements within the Matroska container file.	12. The playback device of claim 14, wherein the index comprises a plurality of CueTrackPosition elements that identify the location of a plurality of Cluster elements within the Matroska container file.
13. The playback device of claim 12, wherein: each Cluster element contains a plurality of BlockGroup elements including encoded portions of video ; a CueTrack Position element indexes each Cluster element; and each CueTrackPosition element includes the size of the Cluster element that it indexes.	14. The playback device of claim 12, wherein: each Cluster element contains a plurality of BlockGroup elements including encoded portions of video; a CueTrack Position element indexes each Cluster element; and each CueTrackPosition element includes the size of the Cluster element that it indexes.
14. The playback device of claim 11, wherein: each of the Matroska container files containing an alternative stream of protected video includes a set of BlockGroup elements that each contain a DRMInfo element and an encrypted frame of video, where the DRMInfo element is a part of the set of DRM information for each of the Matroska container files ; and the client application further configures the processor to decrypt encrypted video frames of the obtained portions of video using the decrypted copy of the common set of frame keys by configuring the	13. The playback device of claim 14, wherein each of the Matroska container files containing an alternative stream of protected video includes a set of BlockGroup elements that each contain a DRMInfo element and an encrypted frame of video, where the DRMInfo element is a part of the set of DRM information for each of the Matroska container files and the client application further configures the processor to decrypt encrypted video frames of the obtained portions of video using the decrypted copy of the common set of frame keys by configuring the

processor to: obtain a BlockGroup containing an encrypted frame of video; parse the BlockGroup element to obtain a DRMInfo element indicating at least a portion of the encrypted frame of video that is encrypted using a frame key from the common set of frame keys; decrypt the at least one encrypted portion of the encrypted frame of video using the identified frame key; and decode the frame of video.	processor to: obtain a BlockGroup containing an encrypted frame of video; parse the BlockGroup element to obtain a DRMInfo element indicating at least a portion of the encrypted frame of video that is encrypted using a frame key from the common set of frame keys; decrypt the at least one encrypted portion of the encrypted frame of video using the identified frame key; and decode the frame of video.

Allowable Subject Matter

11. Claim 1-14 would be allowed if the current rejection set forth in this office action is overcome.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABIY GETACHEW whose telephone number is (571)272-6932. The examiner can normally be reached on Monday to Friday 8Am to 4:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Zand can be reached on (571)272-3811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ABIY GETACHEW/
Examiner, Art Unit 2434

A.G.
July 24, 2016

/MORSHED MEHEDI/

Primary Examiner, Art Unit 2438

Notice of References Cited	Application/Control No. 14/970,412	Applicant(s)/Patent Under Reexamination KIEFER ET AL.	
	Examiner ABIY GETACHEW	Art Unit 2434	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2010/0107260 A1	04-2010	Orrell; Martin	H04H60/80	726/27
*	B	US-2012/0260277 A1	10-2012	Kosciewicz; Pawel	H04N17/004	725/14
*	C	US-2011/0135090 A1	06-2011	Chan; Francis Yee-Dug	H04N21/2351	380/210
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14970412	KIEFER ET AL.
	Examiner	Art Unit
	ABIY GETACHEW	2434

CPC- SEARCHED		
Symbol	Date	Examiner
H04L63/0428 OR H04L63/06 OR H04L63/061 OR H04L63/20 OR H04W12/02 OR H04W12/04 OR H04W76/02 OR H04W84/12 OR H04W88/08	07/24/2016	A.G.

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
713	160	07/24/2016	A.G.

SEARCH NOTES		
Search Notes	Date	Examiner
Class/subclass, Text search and google search.	07/24/2016	A.G.

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14970412	KIEFER ET AL.
	Examiner	**Art Unit**
	ABIY GETACHEW	2434

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	07/24/2016								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
	14	✓								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	("Sonic IP, Inc.").AANM.	US-PGPUB; USPAT	OR	OFF	2016/07/24 16:56
S1	58	((Michael) near2 (Kiefer)).INV.	USPAT	OR	OFF	2016/07/24 15:49
S2	23	((Eric) near2 (Grab)).INV.	USPAT	OR	OFF	2016/07/24 15:49
S3	76	((Jason) near2 (Braness)).INV.	US-PGPUB; USPAT	OR	OFF	2016/07/24 15:49
S5	1550	713/160.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/07/24 16:03
S6	1	713/160.ccls. and ((access$3 play$4 play$1 back playback) with (Common same identical$5) with Key) and((access$3 playS3 playS1 back playback) with (common "same" identical$5) with key) and ((access$2 play$1 back playback))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/07/24 16:10
S7	1	S6 AND ((H04L63/0428 OR H04L63/06 OR H04L63/061 OR H04L63/20 OR H04W12/02 OR H04W12/04 OR H04W76/02 OR H04W84/12 OR H04W88/08).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/07/24 16:19

EAST Search History (Interference)

< This search history is empty>

7/24/2016 4:58:12 PM
C:\Users\agetachew\Documents\EAST\Workspaces\14970412.wsp

CPC Classification - Application Number: 14970412

Examiner: Abiy Getachew **Date Created:** Jul 24, 2016 4:57 PM

Family ID: 47754059

US App. No. (4) & Documents (7): 14/970412 (20160112382 A1), 14/564003 (20150139419 A1, 9247311 B2), 13/341265 (20130061040 A1, 8918636 B2), 13/340623 (20130061045 A1, 8909922 B2)

Foreign Documents (2): WO2013032518A3, WO2013032518A2

Allocations (10)

No.	CPC	Type			Endorsed By	CPC Version	IPC
1	H04L 63/0428	F			US	2013-01-01	H04L29/06
2	H04N 21/4408	I			US	2013-01-01	H04N21/4408
3	H04N 21/4627	I			US	2013-01-01	H04N21/4627
4	H04N 21/2347	I			US	2013-01-01	H04N21/2347
5	H04N 21/2541	I			US	2013-01-01	H04N21/254
6	H04N 21/6334	I			US	2013-01-01	H04N21/6334
7	H04N 21/64715	I			US	2013-01-01	H04N21/647
8	H04L 9/32	I			US	2013-01-01	H04L9/32
9	H04L 9/0819	I			US, EP	2013-01-01	H04L9/08
10	H04L2209/603	A			EP, US	2013-01-01	CPCONLY

Combination Sets (0)

No.	CPC	Type	Set	Rank	Endorsed By	CPC Version	IPC

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,412	12/15/2015	Michael George Kiefer	D1-02359A.CON2

CONFIRMATION NO. 5115

71897
KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

PUBLICATION NOTICE

OC000000082354405

Title: Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information

Publication No.US-2016-0112382-A1
Publication Date:04/21/2016

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/970,412	12/15/2015	2447	1740	D1-02359A.CON2	14	1

CONFIRMATION NO. 5115

FILING RECEIPT

71897
KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

OC000000079844410

Date Mailed: 01/12/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Michael George Kiefer, Lake Havasu City, AZ;
Eric William Grab, San Diego, CA;
Jason Braness, San Diego, CA;

Applicant(s)

Sonic IP, Inc., San Diego, CA;

Assignment For Published Patent Application

Sonic IP, Inc., San Diego, CA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 14/564,003 12/08/2014 PAT 9247311
which is a CON of 13/340,623 12/29/2011 PAT 8909922
which claims benefit of 61/530,305 09/01/2011

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

DivX Exhibit 2005
Page 2005 - 522
IPR2020-00558

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 01/11/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/970,412**

Projected Publication Date: 04/21/2016

Non-Publication Request: No

Early Publication Request: No

Title

Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information

Preliminary Class

709

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

DivX Exhibit 2005
Page 2005 - 525
IPR2020-00558

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,412	12/15/2015	Michael George Kiefer	D1-02359A.CON2

CONFIRMATION NO. 5115

71897
KPPB LLP
2400 EAST KATELLA AVENUE
SUITE 1050
ANAHEIM, CA 92806

INFORMAL NOTICE

OC00000079844411

Date Mailed: 01/12/2016

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Michael George Kiefer
  Eric William Grab
  Jason Braness

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ederido/

DivX Exhibit 2005
Page 2005 - 526
IPR2020-00558

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/970,412

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	14 minus 20 =	*			OR	x 80 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*				x 420 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1600

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02359A.CON2
	Application Number	
Title of Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael	George	Kiefer	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Lake Havasu City	State/Province	AZ	Country of Residence	US

Mailing Address of Inventor:

Address 1	470 Brite Drive		
Address 2			
City	Lake Havasu City	State/Province	AZ
Postal Code	86406	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Eric	William	Grab	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	San Diego	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	5387 Channing Street		
Address 2			
City	San Diego	State/Province	CA
Postal Code	92117	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jason		Braness	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02359A.CON2
	Application Number	
Title of Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	

City	San Diego	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	15885 Concord Ridge Terrace		
Address 2			
City	San Diego	State/Province	CA
Postal Code	92127	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	71897		
Email Address	pair@kppb.com	Add Email	Remove Email

Application Information:

Title of the Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information		
Attorney Docket Number	D1-02359A.CON2	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	19	Suggested Figure for Publication (if any)	1

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02359A.CON2
	Application Number	
Title of Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	(•) Customer Number	( ) US Patent Practitioner	( ) Limited Recognition (37 CFR 11.9)
Customer Number	71897		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	14/564003	2014-12-08

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/564003	Continuation of	13/340623	2011-12-29	8909922	2014-12-09

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
13/340623	Claims benefit of provisional	61/530305	2011-09-01

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02359A.CON2
	Application Number	
Title of Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02359A.CON2
	Application Number	
Title of Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02359A.CON2
	Application Number	
Title of Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Sonic IP, Inc.		
Mailing Address Information For Applicant:			
Address 1	4780 Eastgate Mall		
Address 2			
City	San Diego	**State/Province**	CA
Country	US	Postal Code	92121
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02359A.CON2
	Application Number	
Title of Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Sonic IP, Inc.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	4780 Eastgate Mall		
Address 2			
City	San Diego	**State/Province**	CA
Country	US	Postal Code	92121
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jason D. Wolfe/			Date (YYYY-MM-DD)	2015-12-15
First Name	Jason	Last Name	Wolfe	Registration Number	71327

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02359A.CON2
	Application Number	
Title of Invention	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

SYSTEMS AND METHODS FOR PLAYING BACK ALTERNATIVE STREAMS OF PROTECTED CONTENT PROTECTED USING COMMON CRYPTOGRAPHIC INFORMATION

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The current application is a continuation of U.S. Patent Application Serial No. 14/564,003, filed December 8, 2014, entitled "Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information" to Kiefer et al., which application is a continuation of U.S. Patent No. 8,909,922, issued on December 9, 2014, entitled "Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information" to Kiefer et al., which application claims priority under 35 U.S.C. § 119(e) to U.S. Provisional Application Serial No. 61/530,305 filed September 1, 2011, entitled "Multi-Asset Protected Content Multimedia Delivery System". The disclosures of Application Serial Nos. 14/564,003, 13/340,623 and 61/530,305 are hereby incorporated by reference in their entirety.

FIELD OF THE INVENTION

[0002] The present invention generally relates to adaptive streaming and more specifically to adaptive bitrate streaming of encoded media contained within Matroska container files using Hypertext Transfer Protocol.

BACKGROUND

[0003] The term streaming media describes the playback of media on a playback device, where the media is stored on a server and continuously sent to the playback device over a network during playback. Typically, the playback device stores a sufficient quantity of media in a buffer at any given time during playback to prevent disruption of playback due to the playback device completing playback of all the buffered media prior to receipt of the next portion of media. In many instances, content is divided into multiple streams. For example, content can be divided into audio, video, and subtitle streams and some streams can be encoded as alternative streams that are

suitable for different network connection bandwidths or comply with specific geographic restrictions and/or other restrictions.

[0004] Adaptive bit rate streaming or adaptive streaming involves detecting the present streaming conditions (e.g. the user's network bandwidth and CPU capacity) in real time and adjusting the quality of the streamed media accordingly by selecting between different streams encoded for use at different network connection data rates. Typically, the source media is encoded at multiple bitrates and the playback device or client switches between streaming the different encodings depending on available resources.

[0005] Adaptive streaming solutions typically utilize either Hypertext Transfer Protocol (HTTP), published by the Internet Engineering Task Force and the World Wide Web Consortium as RFC 2616 to stream media between a server and a playback device. HTTP is a stateless protocol that enables a playback device to request a byte range within a file. HTTP is described as stateless, because the server is not required to record information concerning the state of the playback device requesting information or the byte ranges requested by the playback device in order to respond to requests received from the playback device.

[0006] In adaptive streaming systems, the source media is typically stored on a media server as a top level index file pointing to a number of alternate streams that contain the actual video and audio data. Each stream is typically stored in one or more container files. Different adaptive streaming solutions typically utilize different index and media containers. The Synchronized Multimedia Integration Language (SMIL) developed by the World Wide Web Consortium is utilized to create indexes in several adaptive streaming solutions including IIS Smooth Streaming developed by Microsoft Corporation of Redmond, Washington, and Flash Dynamic Streaming developed by Adobe Systems Incorporated of San Jose, California. HTTP Adaptive Bitrate Streaming developed by Apple Computer Incorporated of Cupertino, California implements index files using an extended M3U playlist file (.M3U8), which is a text file containing a list of URIs that typically identify a media container file. The most commonly used media container formats are the MP4 container format specified in MPEG-4 Part 14 (i.e.

DivX Exhibit 2005
Page 2005 - 537
IPR2020-00558

ISO/IEC 14496-14) and the MPEG transport stream (TS) container specified in MPEG-2 Part 1 (i.e. ISO/IEC Standard 13818-1). The MP4 container format is utilized in IIS Smooth Streaming and Flash Dynamic Streaming. The TS container is used in HTTP Adaptive Bitrate Streaming.

[0007] The Matroska container is a media container developed as an open standard project by the Matroska non-profit organization of Aussonne, France. The Matroska container is based upon Extensible Binary Meta Language (EBML), which is a binary derivative of the Extensible Markup Language (XML). Decoding of the Matroska container is supported by many consumer electronics (CE) devices. The DivX Plus file format developed by DivX, LLC of San Diego, California utilizes an extension of the Matroska container format (i.e. is based upon the Matroska container format, but includes elements that are not specified within the Matroska format).

[0008] The term Digital Rights Management (DRM) is utilized to describe access control technologies that are used to control access to and/or copying of digital content. DRM systems typically involve the use of cryptographic information to control access to or protect a piece of content. Content protection is typically achieved using cryptographic information such as (but not limited to) one or more encryption keys to encrypt some or all of the content. An important component of most DRM systems is a mechanism for securely providing cryptographic information to authorized playback devices for use in accessing protected content. The protected content cannot be accessed without the cryptographic data and ideally the cryptographic data is bound to specific playback devices and cannot be readily used by unauthorized playback devices or is securely provided to the playback devices (often on a session basis).

SUMMARY OF THE INVENTION

[0009] Systems and methods in accordance with embodiments of the invention perform adaptive bitrate streaming using alternative streams of protected content. One embodiment of the invention includes a processor, and memory containing a client application. In addition, the client application configures the processor to: request a top level index file identifying a plurality of alternative streams of protected content, where

DivX Exhibit 2005
Page 2005 - 538
IPR2020-00558

each of the alternative streams of protected content are encrypted using common cryptographic information; obtain the common cryptographic information; request portions of content from at least the plurality of alternative streams of protected content; access the protected content using the common cryptographic information; and playback the content.

[0010] In a further embodiment, the alternative streams of protected content are alternative streams of protected video, each of the alternative streams of protected video includes DRM information indicating portions of frames of video that are encrypted and identifying at least a portion of the common cryptographic information used to access the encrypted portions of the frames of video, and the client application configures the processor to: obtain a protected frame of video from one of the alternative streams of protected video; obtain DRM information indicating a portion of the protected frame of video that is encrypted; identify at least a portion of the common cryptographic information that is used to access the encrypted portion of the protected frame using the DRM information; decrypt the encrypted portion of the protected frame of video using the identified portion of the common cryptographic information; and decode the frame of video.

[0011] In another embodiment, each of the alternative streams of protected content is contained within a separate container file, and the top level index file identifies a container file containing each of the alternative streams.

[0012] In still further embodiment, the container files containing each of the alternative streams of protected content includes at least one header including the common cryptographic information and information that describes the encoding of the stream of protected content, and the top level index file identifies the location of the at least one header within each container file.

[0013] In still another embodiment, the common cryptographic information is a set of encryption keys.

[0014] In a yet further embodiment, the common set of encryption keys is encrypted; and the client application configures the processor to securely receive cryptographic information used to unencrypt the common set of encryption keys.

DivX Exhibit 2005
Page 2005 - 539
IPR2020-00558

[0015] In yet another embodiment, the client application configures the processor to obtain the common cryptographic information by requesting at least one header of a container file identified in the top level index file.

[0016] In a further embodiment again, each container file containing one of the alternative streams of protected content further includes an index, and the client application configures the processor to request a portion of content from one of the container files by configuring the processor to: request at least a portion of an index from the container file; identify the portion of the container file containing a specific portion of content using the index; and request the identified portion of the container file.

[0017] In another embodiment again, the container files are Matroska container files.

[0018] In a further additional embodiment, the common cryptographic information is stored in a common DRM Header element contained within a Tracks element within each of the Matroska container files containing the alternative streams of protected content.

[0019] In another additional embodiment, the common cryptographic information is a set of encryption keys; and the set of encryption keys is encrypted and stored within the DRM Header element.

[0020] In a still yet further embodiment, the client application configures the processor to: obtain cryptographic information that can be used to unencrypt the set of encryption keys stored within the DRM Header element; and unencrypt the set of encryption keys stored within the DRM Header element using the obtained cryptographic information.

[0021] In still yet another embodiment, the client application configures the processor to obtain the DRM Header element by requesting a Tracks element from one of the Matroska container files identified in the top level index file.

[0022] In a still further embodiment again, each Mastroska container file containing an alternative stream of protected content further includes an index contained within a Cues element, and the client application configures the processor to request a portion of content from one of the Matroska container files by configuring the processor to: request at least a portion of a Cues element from a Matroska container file containing one of the

DivX Exhibit 2005
Page 2005 - 540
IPR2020-00558

alternative streams of protected content; identify a portion of the Matroska container file containing a specific portion of content using at least one CueTrackPosition element within the Cues element; and request the portion of the Matroska container file identified by the at least one CueTrackPosition element.

[0023] In still another embodiment again, the index includes a plurality of CueTrackPosition elements that identify the location of a plurality of Cluster elements within the Matroska container file.

[0024] In a still further additional embodiment, each Cluster element contains a plurality of BlockGroup elements including encoded portions of content, a CueTrack Position element indexes each Cluster element, and each CueTrackPosition element includes the size of the Cluster element that it indexes.

[0025] In still another additional embodiment, the alternative streams of protected content are alternative streams of protected video, each of the Matroska container files containing an alternative stream of protected video includes a DRMInfo element in a BlockGroup element containing a protected frame of video, where the DRMInfo element indicates at least a portion of the protected frames of video that is encrypted and identifies at least a portion of the common cryptographic information used to access the at least one encrypted portion of the protected frame of video, and the client application configures the processor to access video frames in a stream of protected video using the common cryptographic information by configuring the processor to: obtain a BlockGroup containing a protected frame of video; parse the BlockGroup element to obtain a DRMInfo element indicating at least a portion of the protected frame of video that is encrypted using an encryption key from the set of encryption keys; decrypt the at least one encrypted portion of the protected frame of video using the identified encryption key; and decode the frame of video.

[0026] An embodiment of the method of the invention includes requesting a top level index file identifying a plurality of alternative streams of protected content using a playback device, where each of the alternative streams of protected content are encrypted using common cryptographic information, obtaining the common cryptographic information using the playback device, requesting portions of content from

at least the plurality of alternative streams of protected content using the playback device, accessing the protected content using the playback device and the common cryptographic information, and playing back the content using the playback device.

[0027] In a further embodiment of the method of the invention, the alternative streams of protected content are alternative streams of protected video, each of the alternative streams of protected video includes DRM information indicating portions of frames of video that are encrypted and identifying at least a portion of the common cryptographic information used to access the encrypted portions of the frames of video, and the method further includes obtaining a protected frame of video from one of the alternative streams of protected video using the playback device, obtaining DRM information indicating a portion of the protected frame of video that is encrypted using the playback device, identify at least a portion of the common cryptographic information that is used to access the encrypted portion of the protected frame using the playback device and the DRM information, decrypting the encrypted portion of the protected frame of video using the playback device and the identified portion of the common cryptographic information, and decoding the frame of video using the playback device.

[0028] In another embodiment of the method of the invention, each of the alternative streams of protected content is contained within a separate container file, and the top level index file identifies a container file containing each of the alternative streams.

[0029] In a still further embodiment of the method of the invention, the container files containing each of the alternative streams of protected content include at least one header including the common cryptographic information and information that describes the encoding of the stream of protected content, and the top level index file identifies the location of the at least one header within each container file.

[0030] In still another embodiment of the method of the invention, the common cryptographic information is a set of encryption keys.

[0031] In a yet further embodiment of the method of the invention, the set of encryption keys is encrypted so that it is accessible using cryptographic information obtained by the playback device, and the method further comprising obtaining cryptographic information using the playback device.

DivX Exhibit 2005
Page 2005 - 542
IPR2020-00558

[0032] In yet another embodiment of the method of the invention, the set of encryption keys is encrypted using at least one encryption key, and the playback device securely obtains the at least one encryption key.

[0033] In a further embodiment again of the method of the invention, the at least one encryption key is encrypted using at least one encryption key included in the cryptographic information bound to the playback device.

[0034] Another embodiment again of the method of the invention also includes obtaining the common cryptographic information by requesting at least one header of a container file identified in the top level index file using the playback device.

[0035] In a further additional embodiment of the method of the invention, each container file containing one of the alternative streams of protected content further includes an index, and the method further includes: requesting at least a portion of an index from the container file using the playback device; identify the portion of the container file containing a specific portion of content using the playback device and the index; and requesting the identified portion of the container file using the playback device.

[0036] In another additional embodiment of the method of the invention, the container files are Matroska container files.

[0037] In a still yet further embodiment of the method of the invention, the common cryptographic information is stored in a common DRM Header element contained within a Tracks element within each of the Matroska container files containing the alternative streams of protected content.

[0038] In still yet another embodiment of the method of the invention, the common cryptographic information is a set of encryption keys, and the set of encryption keys is encrypted and stored within the DRM Header element.

[0039] In a still further embodiment again of the method of the invention, the set of encryption keys is encrypted so that it is accessible using cryptographic information obtained by the playback device, and the method further comprising obtaining cryptographic information using the playback device.

DivX Exhibit 2005
Page 2005 - 543
IPR2020-00558

[0040] Still another embodiment again of the method of the invention also includes obtaining the DRM Header element by requesting a Tracks element from one of the Matroska container files identified in the top level index file.

[0041] In a still further additional embodiment of the method of the invention, each Mastroska container file containing an alternative stream of protected content further includes an index contained within a Cues element, and the method further includes: requesting at least a portion of a Cues element from a Matroska container file containing one of the alternative streams of protected content using the playback device; identifying a portion of the Matroska container file containing a specific portion of content using the playback device and at least one CueTrackPosition element within the Cues element; and requesting the portion of the Matroska container file identified by the at least one CueTrackPosition element.

[0042] In still another additional embodiment of the method of the invention, the index includes a plurality of CueTrackPosition elements that identify the location of a plurality of Cluster elements within the Matroska container file.

[0043] In a yet further embodiment again of the method of the invention, each Cluster element contains a plurality of BlockGroup elements including encoded portions of content, a CueTrack Position element indexes each Cluster element, and each CueTrackPosition element includes the size of the Cluster element that it indexes.

[0044] In yet another embodiment again of the method of the invention, the alternative streams of protected content are alternative streams of protected video, each of the Matroska container files containing an alternative stream of protected video includes a DRMInfo element in a BlockGroup element containing a protected frame of video, where the DRMInfo element indicates at least a portion of the protected frames of video that is encrypted and identifies at least a portion of the common cryptographic information used to access the at least one encrypted portion of the protected frame of video, and the method further includes: obtaining a BlockGroup containing a protected frame of video using the playback device; parsing the BlockGroup element to obtain a DRMInfo element indicating at least a portion of the protected frame of video that is encrypted using the playback device and an encryption key from the set of encryption

DivX Exhibit 2005
Page 2005 - 544
IPR2020-00558

keys; decrypting the at least one encrypted portion of the protected frame of video using the playback device and the identified encryption key; and decoding the frame of video using the playback device.

[0045] Another further embodiment includes a machine readable medium containing processor instructions, where execution of the instructions by a processor causes the processor to perform a process including request a top level index file identifying a plurality of alternative streams of protected content, where each of the alternative streams of protected content are encrypted using common cryptographic information, obtaining the common cryptographic information, requesting portions of content from at least the plurality of alternative streams of protected content, accessing the protected content using the common cryptographic information, and playing back the content.

[0046] In still another further embodiment, the alternative streams of protected content are alternative streams of protected video, each of the alternative streams of protected video includes DRM information indicating portions of frames of video that are encrypted and identifying at least a portion of the common cryptographic information used to access the encrypted portions of the frames of video, and execution of the instructions by a processor also causes the processor to perform a process including: obtaining a protected frame of video from one of the alternative streams of protected video; obtaining DRM information indicating a portion of the protected frame of video that is encrypted; identify at least a portion of the common cryptographic information that is used to access the encrypted portion of the protected frame using the DRM information; decrypting the encrypted portion of the protected frame of video using and the identified portion of the common cryptographic information; and decoding the frame of video.

[0047] In yet another further embodiment, the machine readable medium is non-volatile memory.

BRIEF DESCRIPTION OF THE DRAWINGS

[0048] FIG. 1A is a network diagram of an adaptive bitrate streaming system in accordance with an embodiment of the invention.

DivX Exhibit 2005
Page 2005 - 545
IPR2020-00558

[0049] FIG. 1B is a block diagram illustrating a source encoder in accordance with an embodiment of the invention.

[0050] FIG. 1C is a block diagram illustrating a content distribution server in accordance with an embodiment of the invention.

[0051] FIG. 1D is a block diagram illustrating a playback device in accordance with an embodiment of the invention.

[0052] FIG. 2 conceptually illustrates a top level index file and Matroska container files generated by the encoding of source media in accordance with embodiments of the invention.

[0053] FIG. 3 conceptually illustrates a specialized Matroska container file incorporating a TracksData Payload containing cryptographic information in accordance with an embodiment of the invention.

[0054] FIGS. 4a – 4c conceptually illustrate the insertion of different types of protected media into the Clusters element of a Matroska container file subject to various constraints that facilitate adaptive bitrate streaming in accordance with embodiments of the invention.

[0055] FIG. 4d conceptually illustrates the multiplexing of different types of protected media into the Clusters element of a Matroska container file subject to various constraints that facilitate adaptive bitrate streaming in accordance with an embodiment of the invention.

[0056] FIG. 4e conceptually illustrates the inclusion of a protected trick play track into the Clusters element of a Matroska container file subject to various constraints that facilitate adaptive bitrate streaming in accordance with an embodiment of the invention.

[0057] FIG. 5 conceptually illustrates a modified Cues element of a specialized Matroska container file, where the Cues element includes information enabling the retrieval of Cluster elements using HTTP byte range requests in accordance with an embodiment of the invention.

DivX Exhibit 2005
Page 2005 - 546
IPR2020-00558

[0058] FIG. 5a conceptually illustrates a modified Cues element of a specialized Matroska container file in accordance with an embodiment of the invention, where the Cues element is similar to the Cues element shown in FIG. 5 with the exception that attributes that are not utilized during adaptive bitrate streaming are removed.

[0059] FIG. 6 conceptually illustrates the indexing of Cluster elements within a specialized Matroska container file utilizing modified CuePoint elements within the container file in accordance with embodiments of the invention.

[0060] FIG. 7 conceptually illustrates the use of a hierarchical index to index CuePoint elements within a Matroska container file in accordance with embodiments of the invention.

[0061] FIG. 8 is a flow chart illustrating a process for encoding and protecting source media for adaptive bitrate streaming in accordance with an embodiment of the invention.

[0062] FIG. 9 is a flow chart illustrating a process for encoding and encrypting frames of source video in accordance with an embodiment of the invention.

[0063] FIG. 10 conceptually illustrates a DRM header element that can be included in a Matroska container file in accordance with an embodiment of the invention.

[0064] FIG. 11 conceptually illustrates communication between a playback device and an HTTP server associated with the commencement of streaming of encoded media contained within Matroska container files indexed by a top level index file in accordance with an embodiment of the invention.

[0065] FIGS. 12a and 12b conceptually illustrate communication between a playback device and an HTTP server associated with switching between streams in response to the streaming conditions experienced by the playback device prior to the decision to switch streams in accordance with embodiments of the invention.

DETAILED DISCLOSURE OF THE INVENTION

[0066] Turning now to the drawings, systems and methods for performing adaptive bitrate streaming using alternative streams of protected content in accordance with embodiments of the invention are illustrated. In a number of embodiments, source

media is encoded as a number of alternative streams and the alternative streams are protected using a common set of cryptographic information. In many embodiments, the alternative streams are video streams and each stream is protected by encrypting at least a portion of a plurality of video frames within the stream using the common set of cryptographic information. In several embodiments, the common set of cryptographic information is a set of frame keys. In order to protect a video frame, a frame key can be selected from the set of frame keys and used to encrypt at least a portion of the encoded frame and DRM information can be provided with the protected frame indicating the frame key utilized to perform the encryption and the location of the encrypted portion within the frame. By encrypting each of the alternative streams using the same set of cryptographic information, a playback device can switch between streams without the need to maintain or acquire multiple sets of cryptographic information in memory or to reinitialize the decryption engine of the playback device with a different set of cryptographic information.

[0067] In many embodiments, each of the alternative streams is stored in a separate container file referenced by a top level index file. In several embodiments, the common cryptographic information is embedded in each of the container files so that a playback device has access to the cryptographic information irrespective of which alternative is initially select to commence playback of the media. The common cryptographic information can be stored on a content distribution system and associated with a title identifier or title ID that uniquely identifies the source content used to create the alternative streams. When a new alternative stream is generated, a source encoder can utilize the title ID to request the common cryptographic information from the content distribution system and the common cryptographic information can be utilized to encrypt the new alternative stream and embedded in a container file created to contain the new encrypted alternative stream.

[0068] In several embodiments, each stream associated with a piece of source content and/or title ID is stored in a Matroska (MKV) container file. In many embodiments, the Matroska container file is a specialized Matroska container file in that the manner in which the media in each stream is encoded and stored within the

DivX Exhibit 2005
Page 2005 - 548
IPR2020-00558

container is constrained to improve streaming performance. In several embodiments, the Matroska container file is further specialized in that additional DRM elements (i.e. elements that are not specified as part of the Matroska container format) can be included within the file to facilitate the distribution of protected media during adaptive bitrate streaming. In a number of embodiments, common cryptographic information is included within a DRM header element in each of the Matroska container files and references to the common cryptographic information are made using DRMInfo elements within a BlockGroup element corresponding to a specific frame of encrypted video. In other embodiments, any of a variety of mechanisms can be utilized to store DRM information within a Matroska container in accordance with embodiments of the invention. In several embodiments, each stream (i.e. audio, video, or subtitle) is stored within a separate Matroska container file. In other embodiments, an encoded video stream is multiplexed with one or more encoded audio, and/or subtitle streams in each Matroska container file.

[0069] A top level index file containing an index to the streams contained within each of the container files is also generated to enable adaptive bitrate streaming of the encoded media. In many embodiments, the top level index file is a Synchronized Multimedia Integration Language (SMIL) file containing URIs for each of the Matroska container files. In other embodiments, any of a variety of file formats can be utilized in the generation of the top level index file.

[0070] The performance of an adaptive bitstrate streaming system in accordance with embodiments of the invention can be significantly enhanced by encoding each portion of the source video at each bit rate in such a way that the portion of video is encoded in each stream as a single (or at least one) closed group of pictures (GOP) starting with an Instantaneous Decoder Refresh (IDR) frame. The GOP for each stream can then be stored as a Cluster element within the Matroska container file for the stream. In this way, the playback device can switch between streams at the completion of the playback of a Cluster and, irrespective of the stream from which a Cluster is obtained the first frame in the Cluster will be an IDR frame and can be decoded without reference to any encoded media other than the encoded media contained within the

DivX Exhibit 2005
Page 2005 - 549
IPR2020-00558

Cluster element. In many embodiments, the sections of the source video that are encoded as GOPs are all the same duration. In a number of embodiments each two second sequence of the source video is encoded as a GOP.

[0071] Adaptive streaming of source media encoded in the manner outlined above can be coordinated by a playback device in accordance with embodiments of the invention. The playback device obtains information concerning each of the available streams from the top level index file and selects one or more streams to utilize in the playback of the media. The playback device can then obtain header information from the Matroska container files containing the one or more bitstreams or streams, and the headers provide information concerning the decoding of the streams including a DRM header, which contains the cryptographic information utilized to protect the stream. The playback device can also request index information that indexes the encoded media stored within the relevant Matroska container files. The index information can be stored within the Matroska container files or separately from the Matroska container files in the top level index or in separate index files. The index information enables the playback device to request byte ranges corresponding to Cluster elements within the Matroska container file containing specific portions of encoded media via HTTP from the server. As the playback device receives the Cluster elements from the HTTP server, the playback device can evaluate current streaming conditions to determine whether to increase or decrease the bitrate of the streamed media. In the event that the playback device determines that a change in bitrate is necessary, the playback device can obtain header information and index information for the container file(s) containing the desired stream(s) (assuming the playback device has not already obtained this information). The playback device need not perform the computationally intensive process of accessing the encrypted cryptographic information in the header of the new stream, because each of the alternative streams uses common cryptographic information. The index information can then be used to identify the byte range of the Cluster element containing the next portion of the source media encoded at the desired bit rate and the identified Cluster element can be retrieved from the server via HTTP. The next portion of the source media that is requested is typically identified based upon the Cluster

DivX Exhibit 2005
Page 2005 - 550
IPR2020-00558

elements already requested by the playback device and the Cluster elements buffered by the playback device. The next portion of source media requested from the alternative stream is requested to minimize the likelihood that the buffer of the playback device will underflow (i.e. run out media to playback) prior to receipt of the Cluster element containing the next portion of source media by the playback device. In this way, the playback device can achieve adaptive bitrate streaming by retrieving sequential Cluster elements from the various streams as appropriate to the streaming conditions using the top level index and index information describing the Cluster elements within each of the Matroska container files.

[0072] In a number of embodiments, variation in the bitrate between different streams can be achieved by modifying the encoding parameters for each stream including but not limited to the bitrate, frame rate, resolution and sample aspect ratio. The encoding and protection of source video using common cryptographic information for use in adaptive bitrate streaming and the playback of alternative streams of protected content via adaptive bitrate streaming in accordance with embodiments of the invention is discussed further below.

ADAPTIVE STREAMING SYSTEM ARCHITECTURE

[0073] An adaptive bitrate streaming system in accordance with an embodiment of the invention is illustrated in FIG. 1. The adaptive streaming system 10 includes a source encoder 12 configured to encode source media as a number of alternative streams and to protect the encoded streams using common cryptographic information. Alternative streams are streams that encode the same media content in different ways. In several embodiments, the source encoder 12 ingests source content and obtains a title ID and common cryptographic information from a content distribution server 14 that the content distribution server assigns to the source content. The source encoder encodes the alternative streams and protects the streams using the common cryptographic information received from the content distribution server. In many instances, alternative streams encode media content (such as but not limited to video) at different maximum bitrates. In a number of embodiments, the alternative streams are

encoded with different resolutions, sample aspect ratios and/or frame rates. When the streams are written to file(s), the common cryptographic information is also written to the file(s). The content distribution server 14 can receive request to access the alternative streams of content (i.e. the title) via the Internet from a playback device such as (but not limited to) a user computer 18 or a mobile phone 20 and can commence streaming content. In several embodiments, the common cryptographic information is protected by encrypting at least a portion of the common cryptographic information using at least one encryption key. The playback device can securely obtain the cryptographic key using a process such as (but not limited to) Hypertext Transfer Protocol Secure or HTTPS. Other processes for securely obtaining cryptographic information to obtain access to encrypted common cryptographic information in accordance with embodiments of the invention are discussed below.

[0074] In many embodiments, a playback device commences playback by requesting a top level index file from the content distribution server. The source encoder 12, the content distribution server 14, or another server can generate the top level index to the file(s) containing the streams, at least a plurality of which are alternative streams, at the time the request is made or at the time the streams are generated by the source encoder. The playback device can then use HTTP or another appropriate stateless protocol to request portions of the top level index file and the file(s) containing the protected streams via a network 16 such as the Internet.

[0075] In many embodiments, the top level index file is a SMIL file and the media is stored in Matroska container files. As is discussed further below, the media can be stored within the Matroska container file in a way that facilitates the protection of the content using common cryptographic information. In many embodiments, the Matroska container files are specialized Matroska container files that include enhancements (i.e. elements that do not form part of the Matroska file format specification) that facilitate retrieval and decryption using common cryptographic information of specific portions of media during adaptive bitrate streaming.

[0076] Although a specific content distribution system configured to support adaptive bitrate streaming is illustrated in FIG. 1A, any of a variety of content distribution system architectures can be utilized to implement an adaptive bitrate streaming system in accordance with embodiments of the invention. Source encoders, content distribution server systems, and playback devices in accordance with embodiments of the invention are discussed further below.

SOURCE ENCODERS

[0077] In many embodiments, a source encoder can be implemented using a server. In other embodiments, the source encoder can be any processing device including a processor and sufficient resources to perform the transcoding and encryption of source media (including but not limited to video, audio, and/or subtitles). A source encoder in accordance with an embodiment of the invention is illustrated in FIG. 1B. The source encoder 12 is implemented on a computing platform including a processor 12a, volatile memory 12b and non-volatile storage 12c. An encoder application 12d is stored in non-volatile storage 12c. The encoder application includes the machine readable instructions that configure the processor to encode source content 12e as a plurality of streams. In a number of embodiments, the encoder application also configures the source encoder to obtain common cryptographic information 12g that can be utilized to protect alternative streams generated using the source content 12e. In many embodiments, the source encoder obtains the common cryptographic information and a title ID from a content distribution system. In other embodiments, the source encoder generates a title ID and/or cryptographic data and provides the generated information to a content distribution system.

[0078] Although a specific source encoder in accordance with embodiments of the invention is illustrated in FIG. 1B, any of a variety of computing platforms can be utilized to implement a source encoder that is configured to encode at least one stream of source content as a plurality of alternative streams and to protect each of the alternative streams using common cryptographic information in accordance with embodiments of the invention.

DivX Exhibit 2005
Page 2005 - 553
IPR2020-00558

CONTENT DISTRIBUTION SERVERS

[0079] Content distribution servers in accordance with embodiments of the invention can be responsible for storing protected streams of content for streaming to playback devices using adaptive bitrate streaming processes. Content distribution servers can also store common cryptographic information utilized to protect the alternative streams of protected content. In several embodiments, the common cryptographic information is identified utilizing a title ID associated with the common cryptographic information and a set of streams that form part of a specific title or piece of content. A content distribution server in accordance with an embodiment of the invention is illustrated in FIG. 1C. The content distribution server is implemented using a computing platform including a processor 14a, volatile memory 14b, and non-volatile storage 14c. In the illustrated embodiment, a plurality of container files 14d are stored on the content distribution server. Playback devices can stream content from the content distribution server utilizing adaptive bitrate streaming processes in accordance with embodiments of the invention. To facilitate the creation of new streams with respect to a specific piece of content, the content distribution server also stores title IDs 14e for specific pieces of content and common cryptographic information 14f associated with each title ID. A source encoder can request common cryptographic information to protect a new stream related to a specific piece of content, by providing a request to the content distribution server that identifies the specific piece of content using the title ID assigned to it.

[0080] Although a specific content distribution server is illustrated in FIG. 1C, any of a variety of computational platform including (but not limited to) platforms in which container files and common cryptographic information are stored on separate servers can be utilized in content distribution systems in accordance with embodiments of the invention.

PLAYBACK DEVICES

[0081] Referring back to FIG. 1A, the illustrated playback devices include personal computers 18 and mobile phones 20. In other embodiments, playback devices can include consumer electronics devices such as DVD players, Blu-ray players, televisions,

set top boxes, video game consoles, tablets, and other devices that are capable of playing back protected media stored on a content distribution server using adaptive bitrate streaming. A playback device in accordance with an embodiment of the invention is illustrated in FIG. 1D. The playback device is implemented on a processing platform 20 including a processor 20a, volatile memory 20b, and non-volatile memory (or other non-volatile storage) 20c. The non-volatile memory 20c contains a client application 20d, which includes machine readable instructions that can be utilized to configure the processor to register with a content distribution system to obtain cryptographic data 20e bound to the playback device. The playback device can then use the bound cryptographic data 20e to request adaptive bitrate streaming of protected content. As is discussed further below, the alternative streams of protected content utilized to perform adaptive bitrate streaming are protected using common cryptographic information. Once the client application 20d has obtained the common cryptographic information, which can be a time consuming and/or computationally intensive process, the playback device can use the same cryptographic information to access content in any of the alternative streams of protected content within a single instance of a title.

[0082] Although a specific architecture for a playback device is shown in FIG. 1D any of a variety of architectures can be utilized that enable playback devices to request portions of the top level index file and the container files in accordance with embodiments of the invention.

FILE STRUCTURE

[0083] Files generated by a source encoder and/or stored on an HTTP server for streaming to playback devices in accordance with embodiments of the invention are illustrated in FIG. 2. The files utilized in the adaptive bitrate streaming of the source media include a top level index 30 and a plurality of container files 32 that each contain at least one stream. The top level index file describes the content of each of the container files. As is discussed further below, the top level index file can take a variety of forms including an SMIL file and the container files can take a variety of forms including a specialized Matroska container file.

DivX Exhibit 2005
Page 2005 - 555
IPR2020-00558

[0084] In many embodiments, each Matroska container file contains a single protected stream. For example, the stream could be one of a number of alternate video streams protected using common cryptographic information, an audio stream, one of a number of alternate audio streams, a subtitle stream, one of a number of alternate subtitle streams, a trick play stream, or one of a number of alternate trick play streams protected using common cryptographic information. In several embodiments, the Matroska container file includes multiple multiplexed streams. For example, the Matroska container could include a video stream, and one or more audio streams, one or more subtitle streams, and/or one or more trick play streams. As is discussed further below, in many embodiments the Matroska container files are specialized files. The encoding of the media and the manner in which the media is stored within Cluster elements within the Matroska container file can be subject to constraints designed to enhance the performance of an adaptive bitrate streaming system. In a number of embodiments, common cryptographic information is included within a DRM header element in each of the Matroska container files and references to the common cryptographic information are made using DRMInfo elements included within BlockGroup elements of protected (not all frames need be protected to protect the stream). In addition, the Matroska container file can include index elements that facilitate the location and downloading of Cluster elements from the various Matroska container files during the adaptive streaming of the media. Top level index files and Matroska container files that can be used in adaptive bitrate streaming systems in accordance with embodiments of the invention are discussed below.

TOP LEVEL INDEX FILES

[0085] Playback devices in accordance with many embodiments of the invention utilize a top level index file to identify the container files that contain the streams available to the playback device for use in adaptive bitrate streaming. In many embodiments, the top level index files can include references to container files that each include an alternative stream of encoded media. The playback device can utilize the information in the top level index file to retrieve encoded media from each of the

DivX Exhibit 2005
Page 2005 - 556
IPR2020-00558

container files according to the streaming conditions experienced by the playback device.

[0086] In several embodiments, the top level index file provides information enabling the playback device to retrieve information concerning the encoding of the media in each of the container files and an index to encoded media within each of the container files. In a number of embodiments, each container file includes information concerning the encoded media contained within the container file and an index to the encoded media within the container file and the top level index file indicates the portions of each container file containing this information. Therefore, a playback device can retrieve the top level index file and use the top level index file to request the portions of one or more of the container files that include information concerning the encoded media contained within the container file and an index to the encoded media within the container file. A variety of top level index files that can be utilized in adaptive bitrate streaming systems in accordance with embodiments of the invention are discussed further below.

[0087] In a number of embodiments, the top level index file utilized in the adaptive bitrate streaming of media is a SMIL file, which is an XML file that includes a list of URIs describing each of the streams and the container files that contain the streams. The URI can include information such as the "system-bitrate" of the stream contained within the stream and information concerning the location of specific pieces of data within the container file. The top level index SMIL file can be generated when the source media is encoded for playback via adaptive bitrate streaming. Alternatively, the top level index SMIL file can be generated when a playback device requests the commencement of playback of the encoded media. When the playback device receives the top level index SMIL file, the playback device can parse the SMIL file to identify the available streams. The playback device can then select the streams to utilize to playback the content and can use the SMIL file to identify the portions of the container file to download to obtain information concerning the encoding of a specific stream and/or to obtain an index to the encoded media within the container file.

DivX Exhibit 2005
Page 2005 - 557
IPR2020-00558

[0088] Although top level index SMIL files are described above, any of a variety of top level index file formats can be utilized to create top level index files as appropriate to a specific application in accordance with an embodiment of the invention. The use of top level index files to enable playback of encoded media using adaptive bitrate streaming in accordance with embodiments of the invention is discussed further below.

STORING PROTECTED MEDIA IN MKV FILES FOR ADAPTIVE BITRATE STREAMING

[0089] A Matroska container file used to store encoded video in accordance with an embodiment of the invention is illustrated in FIG. 3. The container file 32 is an Extensible Binary Markup Language (EBML) file that is an extension of the Matroska container file format. The specialized Matroska container file 32 includes a standard EBML element 34, and a standard Segment element 36 that includes a standard Seek Head element 40, a standard Segment Information element 42, and a standard Tracks element 44 including a tracks data payload that is a non-standard EBML element containing cryptographic information utilized to access the protected stream(s) contained within the Matroska container file. In many embodiments, the cryptographic data takes the form of a DRMHeaders element (discussed below) that includes a set of keys utilized to access encrypted portions of the stream contained within the Matroska container file. In many embodiments, the set of keys is encrypted in such a way that a playback device can only access the set of keys in the clear using a specific piece or set of cryptographic information.

[0090] The Segment element 36 also includes a standard Clusters element 46. As is described below, the manner in which encoded media is inserted within individual Cluster elements 48 within the Clusters element 46 is constrained to improve the playback of the media in an adaptive streaming system. In many embodiments, the constraints imposed upon the encoded video are consistent with the specification of the Matroska container file format and involve encoding the video so that each cluster includes at least one closed GOP commencing with an IDR frame. In addition to the above elements, the Segment element 36 can optionally include a modified version of

DivX Exhibit 2005
Page 2005 - 558
IPR2020-00558

the standard Cues element. As is discussed further below, the Cues element includes specialized CuePoint elements (i.e. non-standard CuePoint elements) that facilitate the retrieval of the media contained within specific Cluster elements via HTTP. The Segment element 36 can optionally include a non-standard Hierarchical Index element 54. The Hierarchical Index element is an extension to the Matroska file format proposed by DivX, LLC of San Diego, California. The Hierarchical Index element is described in U.S. Patent Application Serial No. 12/272,631, the disclosure of which is incorporated by reference above in its entirety.

[0091] The constraints imposed upon the encoding of media and the formatting of the encoded media within the Clusters element of a Matroska container file for adaptive bitrate streaming of protected streams and the additional DRM and index information inserted within the container file in accordance with embodiments of the invention are discussed further below.

ENCODING MEDIA FOR INSERTION IN CLUSTER ELEMENTS

[0092] An adaptive bitrate streaming system provides a playback device with the option of selecting between different protected streams of encoded media during playback according to the streaming conditions experienced by the playback device. In many embodiments, switching between protected streams is facilitated by separately pre-encoding discrete portions of the source media in accordance with the encoding parameters of each stream and then including each separately encoded portion in its own Cluster element within the stream's container file. Furthermore, the media contained within each Cluster is encoded so that the media is capable of playback without reference to media contained in any other Cluster within the stream. In this way, each stream includes a Cluster element corresponding to the same discrete portion of the source media and, at any time, the playback device can select the Cluster element from the stream that is most appropriate to the streaming conditions experienced by the playback device and can commence playback of the media contained within the Cluster element. Accordingly, the playback device can select clusters from different streams as the streaming conditions experienced by the playback

device change over time. In several embodiments, the Cluster elements are further constrained so that each Cluster element contains a portion of encoded media from the source media having the same duration. In a number of embodiments, each Cluster element includes two seconds of encoded media. The specific constraints applied to the media encoded within each Cluster element depending upon the type of media (i.e. video, audio, or subtitles) are discussed below.

[0093] A Clusters element of a Matroska container file containing a video stream in accordance with an embodiment of the invention is illustrated in FIG. 4a. The Clusters element 46 includes a plurality of Cluster elements 48 that each contains a discrete portion of encoded video. In the illustrated embodiment, each Cluster element 48 includes two seconds of encoded video. In other embodiments, the Cluster elements include encoded video having a greater or lesser duration than two seconds. In several embodiments, the encoded video sequences in the Cluster elements have different durations.

[0094] Each Cluster element 48 includes a Timecode element 60 indicating the start time of the encoded video within the Cluster element and a plurality of BlockGroup elements. As noted above, the encoded video stored within the Cluster is constrained so that the encoded video can be played back without reference to the encoded video contained within any of the other Cluster elements in the container file. In many embodiments, encoding the video contained within the Cluster element as a GOP in which the first frame is an IDR frame enforces the constraint. In the illustrated embodiment, the first BlockGroup element 62 contains an IDR frame. Therefore, the first BlockGroup element 62 does not include a ReferenceBlock element. The first BlockGroup element 62 includes a Block element 64, which specifies the Timecode attribute of the frame encoded within the Block element 64 relative to the Timecode of the Cluster element 48 and a DRMInfo element 65 that identifies a portion of the frame that is encrypted and the cryptographic information that can be utilized to access the encrypted portion of the frame. In a number of embodiments, only a small portion of the video frame is encrypted and the DRMInfo includes a reference to the start of an encrypted block of data and the size of the encrypted block of data. As is discussed

DivX Exhibit 2005
Page 2005 - 560
IPR2020-00558

further below, the common cryptographic information utilized to protect alternative streams of video content is a set of frame keys in many embodiments of the invention and the DRMInfo element can also include an index to a specific frame key in the set of frame keys that can be utilized to access the encrypted block of data in the clear. In other embodiments, any of a variety of information appropriate to identifying encrypted data within a video frame and decrypting the encrypted data can be stored within a DRMInfo element.

[0095] Subsequent BlockGroup elements 66 are not restricted in the types of frames that they can contain (other than that they cannot reference frames that are not contained within the Cluster element). Therefore, subsequent BlockGroup elements 66 can include ReferenceBlock elements 68 referencing other BlockGroup element(s) utilized in the decoding of the frame contained within the BlockGroup or can contain IDR frames and are similar to the first BlockGroup element 62. In addition, subsequent BlockGroup elements 66 can also include DRMInfo elements to describe the manner in which the frame of video contained within the BlockGroup element is protected. As noted above, the manner in which encoded video is inserted within the Cluster elements of the Matroska file conforms with the specification of the Matroska file format.

[0096] The insertion of encoded audio and subtitle information within a Clusters element 46 of a Matroska container file in accordance with embodiments of the invention is illustrated in FIGS. 4b and 4c. In the illustrated embodiments, the encoded media is inserted within the Cluster elements 48 subject to the same constraints applied to the encoded video discussed above with respect to FIG. 4a. In addition, the duration of the encoded audio and subtitle information within each Cluster element corresponds to the duration of the encoded video in the corresponding Cluster element of the Matroska container file containing the encoded video. In other embodiments, the Cluster elements within the container files containing the audio and/or subtitle streams need not correspond with the start time and duration of the Cluster elements in the container files containing the alternative video streams. In many embodiments, audio, and/or subtitle tracks are protected and information identifying the protected portions of

the stream can be included in an element in a manner similar to that described above with respect to protected video streams.

MULIPLEXING STREAMS IN A SINGLE MKV CONTAINER FILE

[0097] The Clusters elements shown in FIGS. 4a – 4c assume that a single stream is contained within each Matroska container file. In several embodiments, media from multiple streams is multiplexed within a single Matroska container file. In this way, a single container file can contain a video stream multiplexed with one or more corresponding audio streams, and/or one or more corresponding subtitle streams. Storing the streams in this way can result in duplication of the audio and subtitle streams across multiple alternative video streams. However, the seek time to retrieve encoded media from a video stream and an associated audio, and/or subtitle stream can be reduced due to the adjacent storage of the data on the server. The Clusters element 46 of a Matroska container file containing multiplexed video, audio and subtitle data in accordance with an embodiment of the invention is illustrated in FIG. 4d. In the illustrated embodiment, each Cluster element 48 includes additional BlockGroup elements for each of the multiplexed streams. The first Cluster element includes a first BlockGroup element 62v for encoded video that includes a Block element 64v containing an encoded video frame and indicating the Timecode attribute of the frame relative to the start time of the Cluster element (i.e. the Timecode attribute 60). A second BlockGroup element 62a includes a Block element 64a including an encoded audio sequence and indicating the timecode of the encoded audio relative to the start time of the Cluster element, and a third BlockGroup element 62s including a Block element 64s containing an encoded subtitle and indicating the timecode of the encoded subtitle relative to the start time of the Cluster element. In the illustrated embodiment, only the video stream is protected. Therefore, the BlockGroup elements 62v containing the video stream include DRMInfo elements 65v to identify the portions of the frames within the video stream that are encrypted. In other embodiments, the audio, and/or subtitle streams can also be protected. Although not shown in the illustrated embodiment, each Cluster element 48 likely would include additional BlockGroup

DivX Exhibit 2005
Page 2005 - 562
IPR2020-00558

elements containing additional encoded video, audio or subtitles. Despite the multiplexing of the encoded video, audio, and/or subtitle streams, the same constraints concerning the encoded media apply.

INCORPORATING TRICK PLAY STREAMS IN MKV CONTAINER FILES FOR USE IN ADAPTIVE BITRATE STREAMING SYSTEMS

[0098] The incorporation of trick play tracks within Matroska container files is proposed by DivX, LLC in U.S. Patent Application No. 12/260,404 entitled "Application Enhancement Tracks", filed October 29, 2008, the disclosure of which is hereby incorporated by reference in its entirety. Trick play tracks similar to the trick play tracks described in U.S. Patent Application No. 12/260,404 can be used to provide a trick play stream in an adaptive bitrate streaming system in accordance with an embodiment of the invention to provide smooth visual search through source content encoded for adaptive bitrate streaming. A separate trick play stream can be encoded that appears to be an accelerated visual search through the source media when played back, when in reality the trick play stream is simply a separate stream encoding the source media at a lower frame rate. In several embodiments, a trick play stream is generated in the manner outlined in U.S. Patent Application No. 12/260,404 and inserting the trick play stream into a Matroska container file subject to the constraints mentioned above with respect to insertion of a video stream into a Matroksa container file. In many embodiments, the trick play stream is also subject to the further constraint that every frame in the GOP of each Cluster element in the trick play stream is encoded as an IDR frame. As with the other video streams, each Cluster element contains a GOP corresponding to the same two seconds of source media as the corresponding Cluster elements in the other streams. There are simply fewer frames in the GOPs of the trick play stream and each frame has a longer duration. In this way, transitions to and from a trick play stream can be treated in the same way as transitions between any of the other encoded streams are treated within an adaptive bitrate streaming system in accordance with embodiments of the invention. In embodiments where the trick play stream(s) are protected, the same common cryptographic information utilized to encrypt the primary

video stream(s) is utilized to protect the trick play stream(s). Playback of the frames contained within the trick play stream to achieve accelerated visual search typically involves the playback device manipulating the timecodes assigned to the frames of encoded video prior to providing the frames to the playback device's decoder to achieve a desired increase in rate of accelerated search (e.g. x2, x4, x6, etc.).

[0099] A Clusters element containing encoded media from a trick play stream is shown in FIG. 4e. In the illustrated embodiment, the encoded trick play stream is inserted within the Cluster elements 48 subject to the same constraints applied to the encoded video discussed above with respect to FIG. 4a including the constraint that frames are protected using the common cryptographic information. However, each BlockGroup element contains an IDR. In other embodiments, the Cluster elements within the container files containing the trick play streams need not correspond with the start time and duration of the Cluster elements in the container files containing the alternative video streams.

[00100] In many embodiments, source content can be encoded to provide a single trick play stream or multiple trick play streams for use by the adaptive bit rate streaming system. When a single trick play stream is provided, the trick play stream is typically encoded at a low bitrate. When multiple alternative trick play streams are provided, adaptive streaming can also be performed with respect to the trick play streams. In several embodiments, multiple trick play streams are provided to support different rates of accelerated visual search through the encoded media.

INCORPORATING INDEXING INFORMATION WITHIN MKV CONTAINER FILES

[00101] The specification for the Matroska container file format provides for an optional Cues element that is used to index Block elements within the container file. A modified Cues element that can be incorporated into a Matroska container file in accordance with an embodiment of the invention to facilitate the requesting of clusters by a playback device using HTTP is illustrated in FIG. 5. The Cues element 52 is similar to a standard Cues element 52 in that it includes a plurality of standard CuePoint elements 70 that each include a standard CueTime attribute 72. Each CuePoint

DivX Exhibit 2005
Page 2005 - 564
IPR2020-00558

element includes a CueTrackPositions element 74 containing the standard CueTrack 76 and CueClusterPosition 78 attributes. In many embodiments, the CuePoint element is mainly configured to identify a specific Cluster element as opposed to a specific Block element within a Cluster element. Although, in several applications the ability to seek to specific Block elements within a Cluster element is required and additional index information is included in the Cues element.

[00102] The use of a modified Cues element to index encoded media within a Clusters element of a Matroska file in accordance with an embodiment of the invention is illustrated in FIG. 6. A CuePoint element is generated to correspond to each Cluster element within the Matroska container file. The CueTime attribute 72 of the CuePoint element 70 corresponds to the Timecode attribute 60 of the corresponding Cluster element 48. In addition, the CuePoint element contains a CueTrackPositions element 74 having a CueClusterPosition attribute 78 that points to the start of the corresponding Cluster element 48. The CueTrackPositions element 74 can also include a CueBlockNumber attribute, which is typically used to indicate the Block element containing the first IDR frame within the Cluster element 48.

[00103] As can readily be appreciated the Cues element 52 forms an index to each of the Cluster elements 48 within the Matroska container file. Furthermore, the CueTrackPosition elements provide information that can be used by a playback device to request the byte range of a specific Cluster element 48 via HTTP or another suitable protocol from a remote server. The Cues element of a conventional Matroska file does not directly provide a playback device with information concerning the number of bytes to request from the start of the Cluster element in order to obtain all of the encoded video contained within the Cluster element. The size of a Cluster element is, therefore, inferred by using the CueClusterPosition attribute of the CueTrackPositions element that indexes the first byte of the next Cluster element. Alternatively, additional CueTrackPosition elements could be added that index the last byte of the Cluster element (in addition to the CueTrackPositions elements that index the first byte of the Cluster element), and/or a non-standard CueClusterSize attribute that specifies the size of the Cluster element pointed to by the CueClusterPosition attribute is included in each

CueTrackPosition element to assist with the retrieval of specific Cluster elements within a Matroska container file via HTTP byte range requests or a similar protocol.

[00104] The modification of the Cues element in the manner outlined above significantly simplifies the retrieval of Cluster elements from a Matroska container file via HTTP or a similar protocol during adaptive bitrate streaming. In addition, by only indexing the first frame in each Cluster the size of the index is significantly reduced. Given that the index is typically downloaded prior to playback, the reduced size of the Cues element (i.e. index) means that playback can commence more rapidly. Using the CueClusterPosition elements, a playback device can request a specific Cluster element from the stream most suited to the streaming conditions experienced by the playback device by simply referencing the index of the relevant Matroska container file using the Timecode attribute for the desired Cluster element.

[00105] A number of the attributes within the Cues element are not utilized during adaptive bitrate streaming. Therefore, the Cues element can be further modified by removing the unutilized attributes to reduce the overall size of the index for each Matroska container file. A modified Cues element that can be utilized in a Matroska container file that includes a single encoded stream, where portions of the encoded stream having the same duration are contained in each Cluster element within the Matroska file in accordance with an embodiment of the invention is illustrated in FIG. 5a. The Cues element 52' shown in FIG. 5a is similar to the Cues element 52 shown in FIG. 5 with the exception that the CuePoint elements 70' do not include a CueTime attribute (see 72 in FIG. 5) and/or the CueTrackPositions elements 74' do not include a CueTrack attribute (76 in FIG. 5). When the portions of encoded media in each Cluster element in the Matroska container file have the same duration, the CueTime attribute is not necessary. When the Matroska contain file includes a single encoded stream, the CueTrack attribute is not necessary. In other embodiments, the Cues element and/or other elements of the Matroska container file can be modified to remove elements and/or attributes that are not necessary for the adaptive bitrate streaming of the encoded stream contained within the Matroska container file, given the manner in which the stream is encoded and inserted in the Matroska container file.

[00106] Although various modifications to the Cues element to include information concerning the size of each of the Cluster elements within a Matroska container file and to eliminate unnecessary attributes are described above, many embodiments of the invention utilize a conventional Matroska container. In several embodiments, the playback device simply determines the size of Cluster elements on the fly using information obtained from a conventional Cues element, and/or relies upon a separate index file containing information concerning the size and/or location of the Cluster elements within the MKV container file. In several embodiments, the additional index information is stored in the top level index file. In a number of embodiments, the additional index information is stored in separate files that are identified in the top level index file. When index information utilized to retrieve Cluster elements from a Matroska container file is stored separately from the container file, the Matroska container file is still typically constrained to encode media for inclusion in the Cluster elements in the manner outlined above. In addition, wherever the index information is located, the index information will typically index each Cluster element and include (but not be limited to) information concerning at least the starting location and, in many instances, the size of each Cluster element.

INCORPORATING HIERARCHICAL INDEXES INTO MKV CONTAINERS

[00107] Retrieval of media using HTTP during adaptive streaming can be improved by adding additional index information to the Matroska container files used to contain each of the encoded streams. In a number of embodiments, the index is a reduced index in that the index only points to the IDRs at the start of each cluster. In many embodiments, the index of the Matroska container file includes additional non-standard attributes (i.e. attributes that do not form part of the Matroska container file format specification) that specify the size of each of the clusters so that a playback device can retrieve a Cluster element from the Matroska container file via HTTP using a byte range request. In several embodiments, the Matroska container file includes a hierarchical index using a HierarchicalIndex element similar to the hierarchical indexes disclosed in U.S. Patent Application Serial No. 12/272,631 entitled “Hierarchical and Reduced Index

DivX Exhibit 2005
Page 2005 - 567
IPR2020-00558

Structures for Multimedia Files" to Soroushian et al. filed November 17, 2008 to increase the speed with which a playback device can seek to a specific Cluster element containing encoded media within the container file. The disclosure of U.S. Patent Application Serial No. 12/272,631 is hereby incorporated by reference in its entirety.

[00108] A hierarchical index included in a Matroska container file using a HierarchicalIndex element in accordance with an embodiment of the invention is illustrated in FIG. 7. The HierarchicalIndex element 54 includes a plurality of HierarchicalIndexPointer elements 80 that each point to a CuePoint element 70 within the Cues element 52. In this way, the hierarchical index can be utilized to rapidly locate specific Cluster elements within a Matroska file using the Timecode attribute of the Cluster element. Furthermore, the entire index (i.e. the entire Cues element) need not be downloaded in order to locate a specific Cluster element. The playback device can simply download the hierarchical index and download the specific CuePoint elements that enable the location of a desired Cluster element within the Matroska container file.

[00109] In several embodiments, the HierarchicalIndex element is generated so that the HierarchicalIndexPointer elements point to CuePoint elements indexing Cluster elements that are a predetermined time period apart. For example, the HierarchicalIndexPointer elements can point to CuePoint elements indexing Cluster elements that are spaced 30 seconds apart. In other implementations, any of a variety of implementations can be utilized to determine the interval between the CuePoint elements referenced by the higher layers of the hierarchical index. In addition, although a two layer hierarchical index is illustrated in FIG. 7, hierarchical indexes including three or more layers can also be incorporated within Matroska container files generated for use in adaptive bitrate streaming systems in accordance with embodiments of the invention.

[00110] As noted above, index information can be stored in a separate file to the Matroska container file in accordance with embodiments of the invention. In embodiments where the index information is stored separately, the index can be hierarchical to prevent the need to download the entire index for a container file prior to playback and to facilitate seeking within the index.

DivX Exhibit 2005
Page 2005 - 568
IPR2020-00558

ENCODING AND PROTECTING SOURCE MEDIA FOR ADAPTIVE BITRATE STREAMING

[00111] A process for encoding source media as a top level index file and a plurality of Matroska container files for use in an adaptive bitrate streaming system in accordance with an embodiment of the invention is illustrated in FIG. 8. The encoding process 100 commences by writing headers for each of the MKV files that will contain the streams of content generated using the source content. In the illustrated embodiment, the source content includes a stream of video that is encoded as a plurality of protected streams. The frames of the source video are encoded (104) using the encoding parameters associated with each of the alternative streams and portions of the encoded frames can be encrypted using a frame key selected from a set of frame keys. When the encoding and encryption of the streams is complete, an index is inserted (106) into each Matroska container file containing an alternative stream of protected video. The common set of frame keys is also encrypted (108) and the process writes (110) a DRM header including the encrypted set of frame keys to each container file. DRM headers and processes for restricting access to cryptographic information stored within the DRM header of a Matroska container file in accordance with embodiments of the invention are discussed further below.

[00112] A process for encoding and protecting frames of video to create a plurality of alternative streams of protected video in accordance with embodiments of the invention is illustrated in FIG. 9. The process 120 includes selecting (122) a first portion of the source media and encoding (123) the source media using the encoding parameters for each alternative stream. Assuming that the resulting frame is to be encrypted, a frame key can be selected (124) from a common set of frame keys and utilized to encrypt at least a portion of the frame of video. A DRMInfo element can then be written (125) to a BlockGroup element. The DRMInfo element identifies the portion of the frame that is encrypted and the frame key that can be utilized by a playback device to access the encrypted portion of the frame. The encoded and/or encrypted frame can then be written (126) to the BlockGroup element. When the entire source video stream is determined (127) as being encoded and protected, then the process is complete.

DivX Exhibit 2005
Page 2005 - 569
IPR2020-00558

[00113] Each portion of source video that is encoded (123) can be encoded as a single GOP commencing with an IDR frame. In many embodiments, encoding parameters used to create the alternative GOPs vary based upon bitrate, frame rate, encoding parameters and resolution. In this way, the portion of media is encoded as a set of interchangeable alternatives and a playback device can select the alternative most appropriate to the streaming conditions experienced by the playback device. When different resolutions are supported, the encoding of the streams is constrained so that each stream has the same display aspect ratio. A constant display aspect ratio can be achieved across different resolution streams by varying the sample aspect ratio with the resolution of the stream. In many instances, reducing resolution can result in higher quality video compared with higher resolution video encoded at the same bit rate.

[00114] Although specific processes involving the encoding and protection of a source video stream as a set of alternative streams are illustrated in FIGS. 8 and 9, any of a variety of processes can be utilized to protect audio, video, and/or subtitle streams using common cryptographic information in accordance with embodiments of the invention. Following the encoding of the source media to create Matroska container files containing each of the protected streams, which can include trick play streams, the Matroska container files can be uploaded to a content distribution server for adaptive bitrate streaming to playback devices. The adaptive bitrate streaming of protected media encoded in accordance with embodiments of the invention using HTTP requests is discussed further below.

DRM HEADERS

[00115] Common cryptographic information utilized in protecting alternative streams can be inserted into container files containing each of the alternative streams. When the container files are Matroska container files, the common cryptographic information can be inserted into the container file as a DRMHeader element. A DRMHeader element configured to contain a set of keys in accordance with an embodiment of the invention is illustrated in FIG. 10. The DRM Header element 130 includes a plurality of pieces of information 132 including a frame keys record 134 that can be utilized to

DivX Exhibit 2005
Page 2005 - 570
IPR2020-00558

contain a set of frame keys or frame key table common to each of a plurality of alternative streams.

[00116] If the frame key record 134 is communicated in the clear, then any playback device can access the protected streams. Therefore, the frame keys record 134 is typically encrypted using one or more encryption keys. The encryption key(s) used to encrypt the frame key record 134 can be securely provided to an individual playback device using any of a variety of techniques appropriate to a specific application. In the context of streaming systems that also support the downloading of content.

[00117] Although a specific format for storing common cryptographic information in a Matroska container file is illustrated in FIG. 10, any format can be utilized to store common cryptographic information in a Matroska container file and/or any other container file appropriate to a specific application in accordance with an embodiment of the invention. Adaptive bitrate streaming of protected content in accordance with embodiments of the invention is discussed further below.

ADAPTIVE BITRATE STREAMING FROM MKV CONTAINER FILES USING HTTP

[00118] When source media is encoded so that there are alternative streams of protected media contained in separate Matroska container files for at least one of video, audio, and subtitle content, adaptive streaming of the media contained within the Matroska container files can be achieved using HTTP requests or a similar stateless data transfer protocol. In many embodiments, a playback device requests a top level index file from a content distribution server and uses the index information to identify the streams that are available to the playback device and the cryptographic information required to access any protected streams. The playback device can then retrieve the indexes for one or more of the Matroska files and can use the indexes to request media from one or more of the protected streams contained within the Matroska container files using HTTP requests or using a similar stateless protocol. As noted above, many embodiment of the invention implement the indexes for each of the Matroska container files using a modified Cues element. In several embodiments, the index is a hierarchical index and is also includes a HierarchicalIndex element contained within the

DivX Exhibit 2005
Page 2005 - 571
IPR2020-00558

Matroska container file. In a number of embodiments, however, the encoded media for each stream is contained within a standard Matroska container file and separate index file(s) can also be provided for each of the container files.

[00119] Based upon the streaming conditions experienced by the playback device, the playback device can select media from alternative protected streams encoded at different bitrates. When the media from each of the streams is protected using common cryptographic information and inserted into the Matroska container files in the manner outlined above, transitions between streams can occur upon the completion of playback of media within a Cluster element without the need to retrieve additional cryptographic information. As noted above, the size of the Cluster elements (i.e the duration of the encoded media within the Cluster elements) is typically chosen so that the playback device is able to respond quickly enough to changing streaming conditions and to instructions from the user that involve utilization of a trick play track. The smaller the Cluster elements (i.e. the smaller the duration of the encoded media within each Cluster element) the higher the overhead associated with requesting each Cluster element. Therefore, a tradeoff exists between the responsiveness of the playback device to changes in streaming conditions and the effective data rate of the adaptive streaming system for a given set of streaming conditions (i.e. the portion of the available bandwidth actually utilized to transmit encoded media). In many embodiments, the size of the Cluster elements is chosen so that each Cluster element contains two seconds of encoded media. In other embodiments, the duration of the encoded media can be greater or less than two seconds and/or the duration of the encoded media can vary from Cluster element to Cluster element.

[00120] Communication between a playback device or client and an HTTP server during the playback of media encoded in separate streams contained within Matroska container files indexed by a top level index file in accordance with an embodiment of the invention is illustrated in FIG. 11. In the illustrated embodiment, the playback device 200 commences playback by requesting the top level index file from the server 202 using an HTTP request or a similar protocol for retrieving data. The server 202 provides the bytes corresponding to the request. The playback device 200 then parses the top

DivX Exhibit 2005
Page 2005 - 572
IPR2020-00558

level index file to identify the URIs of each of the Matroska container files containing the streams of encoded media derived from a specific piece of source media. The playback device can then request the byte ranges corresponding to headers of one or more of the Matroska container files via HTTP or a similar protocol, where the byte ranges are determined using the information contained in the URI for the relevant Matroska container files (see discussion above). The server returns the following information in response to a request for the byte range containing the headers of a Matroska container file:

ELEM("EBML")
ELEM("SEEKHEAD")
ELEM("SEGMENTINFO")
ELEM("TRACKS")

[00121] The EBML element is typically processed by the playback device to ensure that the file version is supported. The SeekHead element is parsed to find the location of the Matroska index elements and the SegmentInfo element contains two key elements utilized in playback: TimecodeScale and Duration. The TimecodeScale specifies the timecode scale for all timecodes within the Segment of the Matroska container file and the Duration specifies the duration of the Segment based upon the TimecodeScale. The Tracks element contains the information used by the playback device to decode the encoded media contained within the Clusters element of the Matroska file including the common cryptographic information, which can take a variety of forms including but not limited to a DRMHeader element. As noted above, adaptive bitrate streaming systems in accordance with embodiments of the invention can support different streams encoded using different encoding parameters including but not limited to frame rate, and resolution. Therefore, the playback device can use the information contained within the Matroska container file's headers to configure the decoder every time a transition is made between encoded streams. Due to the fact that alternative protected streams utilize the same cryptographic information, the engine utilized to decrypt the content on the client 200 (i.e. the software process used to decrypt

encrypted portions of frames of video) does not require reconfiguration using different cryptographic information with each stream switch.

[00122] In many embodiments, the playback device does not retrieve the headers for all of the Matroska container files indexed in the top level index file. Instead, the playback device determines the stream(s) that will be utilized to initially commence playback and requests the headers from the corresponding Matroska container files. Depending upon the structure of the URIs contained within the top level index file, the playback device can either use information from the URIs or information from the headers of the Matroska container files to request byte ranges from the server that contain at least a portion of the index from relevant Matroska container files. The byte ranges can correspond to the entire index or can correspond to the top level of a hierarchical index and a portion of a lower level index (i.e. a HierarchicalIndex element and one or more CuePoint elements). The server provides the relevant byte ranges containing the index information to the playback device, and the playback device can use the index information to request the byte ranges of Cluster elements containing encoded media using this information. When the Cluster elements are received, the playback device can extract encoded media from the BlockGroup elements within the Cluster element, and can decode and playback the media within the BlockGroup elements in accordance with their associated Timecode attributes. Prior to decoding the encoded media, the playback device can check for the presence of a DRMInfo element within each BlockGroup of a video stream to identify whether the encoded media is protected. The playback device can use the information within the DRMInfo element to decrypt encrypted portions of the video prior to decoding.

[00123] In the illustrated embodiment, the playback device 200 requests sufficient index information from the HTTP server prior to the commencement of playback that the playback device can stream the entirety of each of the selected streams using the index information. In other embodiments, the playback device continuously retrieves index information as media is played back. In several embodiments, all of the index information for the lowest bitrate steam is requested prior to playback so that the index

DivX Exhibit 2005
Page 2005 - 574
IPR2020-00558

information for the lowest bitrate stream is available to the playback device in the event that streaming conditions deteriorate rapidly during playback.

SWITCHING BETWEEN STREAMS

[00124] The communications illustrated in FIG. 11 assume that the playback device continues to request media from the same streams (i.e. Matroska container files) throughout playback of the media. In reality, the streaming conditions experienced by the playback device are likely to change during the playback of the streaming media and the playback device can request media from alternative streams (i.e. different Matroska container files) to provide the best picture quality for the streaming conditions experienced by the playback device. In addition, the playback device may switch streams in order to perform a trick play function that utilizes a trick play track stream.

[00125] Communication between a playback device and a server when a playback device switches to a new stream in accordance with embodiments of the invention are illustrated in FIG. 12a. The communications illustrated in FIG. 12a assume that the index information for the new stream has not been previously requested by the playback device and that downloading of Cluster elements from the old stream proceeds while information is obtained concerning the Matroska container file containing the new stream. When the playback device 200 detects a change in streaming conditions, determines that a higher bitrate stream can be utilized at the present streaming conditions, or receives a trick play instruction from a user, the playback device can use the top level index file to identify the URI for a more appropriate alternative stream to at least one of the video, audio, or subtitle streams from which the playback device is currently requesting encoded media. The playback device can save the information concerning the current stream(s) and can request the byte ranges of the headers for the Matroska container file(s) containing the new stream(s) using the parameters of the corresponding URIs. Caching the information in this way can be beneficial when the playback device attempts to adapt the bitrate of the stream downward. When the playback device experiences a reduction in available bandwidth, the playback device ideally will quickly switch to a lower bitrate stream. Due to the reduced bandwidth

DivX Exhibit 2005
Page 2005 - 575
IPR2020-00558

experienced by the playback device, the playback device is unlikely to have additional bandwidth to request header and index information. Ideally, the playback device utilizes all available bandwidth to download already requested higher rate Cluster elements and uses locally cached index information to start requesting Cluster elements from Matroska container file(s) containing lower bitrate stream(s). When a hierarchical index is used, the playback device typically will download additional index information. However, the amount of index information that is downloaded is significantly reduced as the headers of the Matroska container file are already cached on the playback device and the playback device only needs a portion of the index in order commence requesting Cluster elements from the Matroska container file(s) containing the new stream(s).

[00126] Byte ranges for index information for the Matroska container file(s) containing the new stream(s) can be requested from the HTTP server 202 in a manner similar to that outlined above with respect to FIG. 11. At which point, the playback device can stop downloading of cluster elements from the previous streams and can commence requesting the byte ranges of the appropriate Cluster elements from the Matroska container file(s) containing the new stream(s) from the HTTP server, using the index information from the Matroska container file(s) to identify the Cluster element(s) containing the encoded media following the encoded media in the last Cluster element retrieved by the playback device. As noted above, the encoding of the alternative streams so that corresponding Cluster elements within alternative streams (i.e. Cluster elements containing the same portion of the source media encoded in accordance with different encoding parameters) start with the same Timecode element and an IDR frame facilitates the smooth transition from one stream to another. In addition, the use of common cryptographic information further facilitates smooth switching between alternative streams.

[00127] When the Matroska file includes a hierarchical index, the process for switching between streams can involve downloading less than the entire index of the new streams. The index information can be downloaded by requesting the byte range for the hierarchical index and then using the Timecode attribute of media played back

DivX Exhibit 2005
Page 2005 - 576
IPR2020-00558

by the playback device 200 to identify the location of CuePoint elements within the Matroska container file(s) containing the new stream(s) that reference Cluster elements containing sequential encoded media and requesting the byte ranges of the CuePoint elements from the HTTP server 202. After the HTTP server has provided the byte ranges including the CuePoint elements, the playback device can use the information within the CuePoint elements to request byte ranges containing desired Cluster elements from the HTTP server. At which point, playback of the encoded media contained within the Cluster elements proceeds in the manner discussed above.

[00128] When the playback device caches the header and the entire index for each stream that has be utilized in the playback of the media, the process of switching back to a previously used stream can be simplified. The playback device already has the header and index information for the Matroska file containing the previously utilized stream and the playback device can simply use this information to start requesting Cluster elements from the Matroska container file of the previously utilized stream via HTTP. Communication between a playback device and an HTTP server when switching back to a stream(s) for which the playback device has cached header and index information in accordance with an embodiment of the invention is illustrated in FIG. 12b. The process illustrated in FIG. 12b is ideally performed when adapting bitrate downwards, because a reduction in available resources can be exacerbated by a need to download index information in addition to media. The likelihood of interruption to playback is reduced by increasing the speed with which the playback device can switch between streams and reducing the amount of overhead data downloaded to achieve the switch. When a hierarchical index is utilized, the playback device requests the appropriate portion of the index from the Matroska container file(s) containing the lower bitrate stream(s) prior to requesting Cluster elements from the Matroska container file.

[00129] Although the present invention has been described in certain specific aspects, many additional modifications and variations would be apparent to those skilled in the art. It is therefore to be understood that the present invention may be practiced otherwise than specifically described, including various changes in the implementation such as utilizing encoders and decoders that support features beyond those specified within a particular standard with which they comply, without departing from the scope and spirit of the present invention. Thus, embodiments of the present invention should be considered in all respects as illustrative and not restrictive.

DivX Exhibit 2005
Page 2005 - 578
IPR2020-00558

WHAT IS CLAIMED:

1. A playback device, comprising:

a processor;

memory containing a client application;

wherein the client application configures the processor to:

register with a content distribution system in order to obtain cryptographic data bound to the playback device from the content distribution system;

request adaptive bitrate streaming of protected video from the content distribution system using the bound cryptographic data;

obtain a top level index file from the content distribution server, wherein the top level index file identifies a plurality of alternative streams of protected video that have been protected by a common set of frame keys generated by a source encoder, and wherein the top level index file comprises (i) an encrypted copy of a first key from the common set of frame keys and (ii) a set of DRM information that identifies protected portions of the alternative streams of protected video and frame keys to utilize in accessing the protected portions of the alternative streams;

obtain a first portion of protected video from a given stream of protected video from the content distribution system, wherein the first portion of protected video is protected by the first key from the common set of frame keys;

decrypt the encrypted copy of the first key using the bound cryptographic data;

decrypt the first portion of protected video using the decrypted first key according to the obtained set of DRM information;

playback the decrypted first portion of video from the given stream;

obtain a second portion of protected video from the given stream of protected video from the content distribution system, wherein the second portion of protected video is protected by a second key from the common set of frame keys;

DivX Exhibit 2005
Page 2005 - 579
IPR2020-00558

obtain an encrypted copy of the second key from the common set of frame keys from the source encoder, wherein the encrypted copy of the second key has been generated by the source encoder;

decrypt the encrypted copy of the second key using the bound cryptographic data;

decrypt the second portion of protected video using the decrypted second key according to the obtained set of DRM information; and

playback the decrypted second portion of video from the given stream.

2. The playback device of claim 1, wherein:

the alternative streams of protected video are encoded at different maximum bitrates using different sets of encoding parameters; and

the client application further configures the processor to decode the encoded frames of video prior to playback of the obtained portions of video.

3. The playback device of claim 1, wherein:

the plurality of alternative streams of protected video are contained in container files that comprise at least one header that includes information that describes the encoding of the stream of protected video ; and

the top level index file identifies the location of the at least one header within each container file.

4. The playback device of claim 3, wherein:

each container file containing one of the alternative streams of protected video further comprises an index; and

the client application further configures the processor to :

request at least a portion of an index from the given container file;

identify the portion of the given container file containing a specific portion of video using the index; and

request the identified portion of the given container file.

5. The playback device of claim 3, wherein the container files are Matroska container files.

6. The playback device of claim 5, wherein the common set of frame keys is stored in a common DRM Header element contained within a Tracks element within each of the Matroska container files containing the alternative streams of protected video .

7. The playback device of claim 1, wherein the common set of frame keys is part of a frame key table that is common to each of the plurality of alternative streams.

8. The playback device of claim 1, wherein the client application further configures the processor to securely receive a content key, and wherein the common set of frame key is encrypted.

9. The playback device of claim 8, wherein the client application further configures the processor to:

obtain the content key that can be used to decrypt the encrypted common set of frame keys; and

decrypt the common set of frame keys using the obtained content key.

10. The playback device of claim 8, wherein the client application configures the processor to obtain a common DRM Header element by requesting a Tracks element from a Matroska container file identified in the top level index file.

DivX Exhibit 2005
Page 2005 - 581
IPR2020-00558

11. The playback device of claim 5, wherein:

each Mastroska container file containing an alternative stream of protected video further comprises an index contained within a Cues element; and

the client application further configures the processor to request a portion of video from one of the Matroska container files by configuring the processor to:

request at least a portion of a Cues element from a Matroska container file containing one of the alternative streams of protected video ;

identify a portion of the Matroska container file containing a specific portion of video using at least one CueTrackPosition element within the Cues element; and

request the portion of the Matroska container file identified by the at least one CueTrackPosition element.

12. The playback device of claim 11, wherein the index comprises a plurality of CueTrackPosition elements that identify the location of a plurality of Cluster elements within the Matroska container file.

13. The playback device of claim 12, wherein:

each Cluster element contains a plurality of BlockGroup elements including encoded portions of video ;

a CueTrack Position element indexes each Cluster element; and

each CueTrackPosition element includes the size of the Cluster element that it indexes.

14. The playback device of claim 11, wherein:

each of the Matroska container files containing an alternative stream of protected video includes a set of BlockGroup elements that each contain a DRMInfo element and an encrypted frame of video, where the DRMInfo element is a part of the set of DRM information for each of the Matroska container files ; and

the client application further configures the processor to decrypt encrypted video frames of the obtained portions of video using the decrypted copy of the common set of frame keys by configuring the processor to:

obtain a BlockGroup containing an encrypted frame of video;

parse the BlockGroup element to obtain a DRMInfo element indicating at least a portion of the encrypted frame of video that is encrypted using a frame key from the common set of frame keys;

decrypt the at least one encrypted portion of the encrypted frame of video using the identified frame key; and

decode the frame of video.

Abstract

Systems and methods for performing adaptive bitrate streaming using alternative streams of protected content in accordance with embodiments of the invention are described. One embodiment of the invention includes a processor, and memory containing a client application. In addition, the client application configures the processor to: request a top level index file identifying a plurality of alternative streams of protected content, where each of the alternative streams of protected content are encrypted using common cryptographic information; obtain the common cryptographic information; request portions of content from at least the plurality of alternative streams of protected content; access the protected content using the common cryptographic information; and playback the content.

DivX Exhibit 2005
Page 2005 - 584
IPR2020-00558

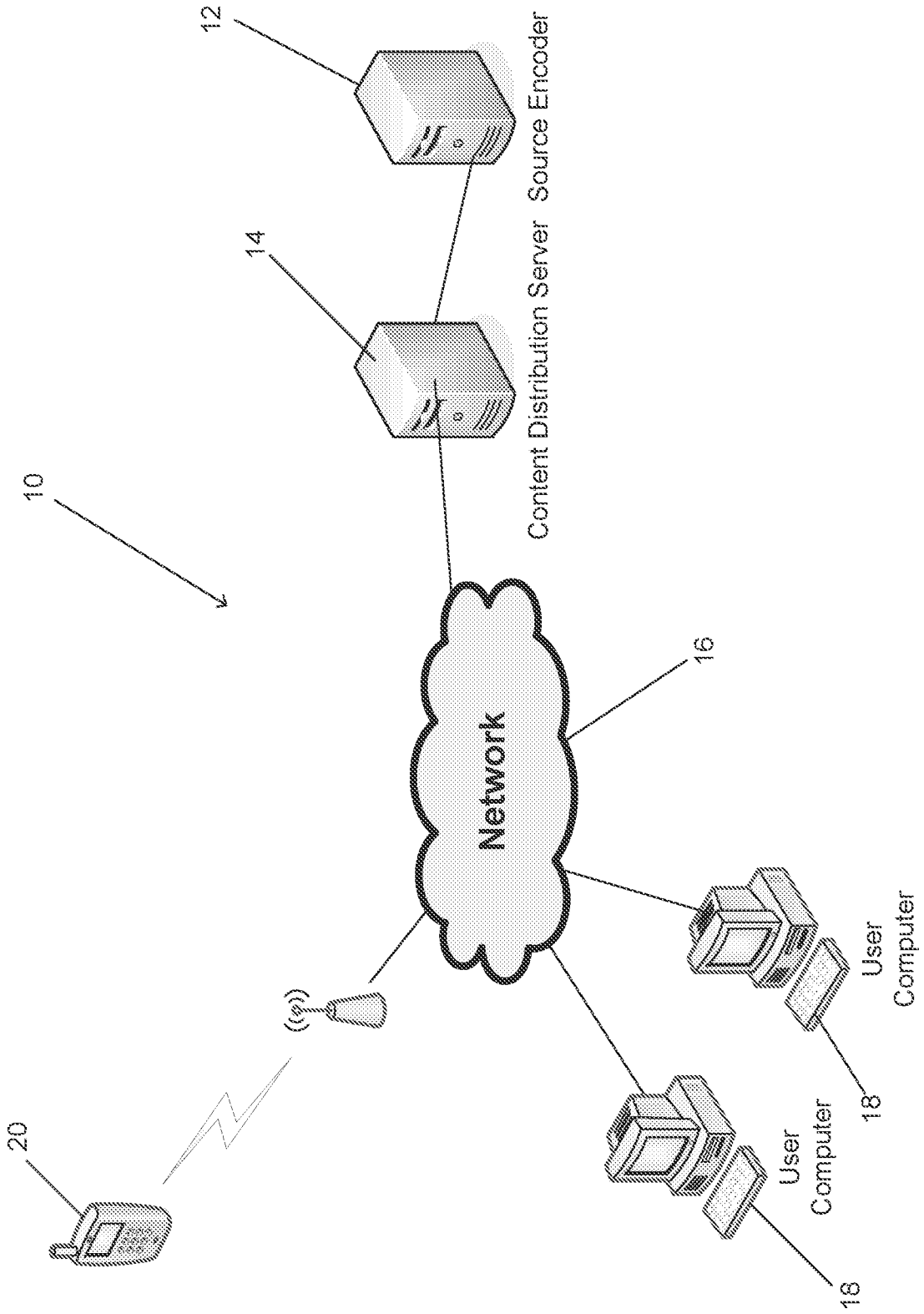

12
Content Distribution Server
Source Encoder
14
10
Network
16
User Computer
18
User Computer
18
20

FIG. 1A

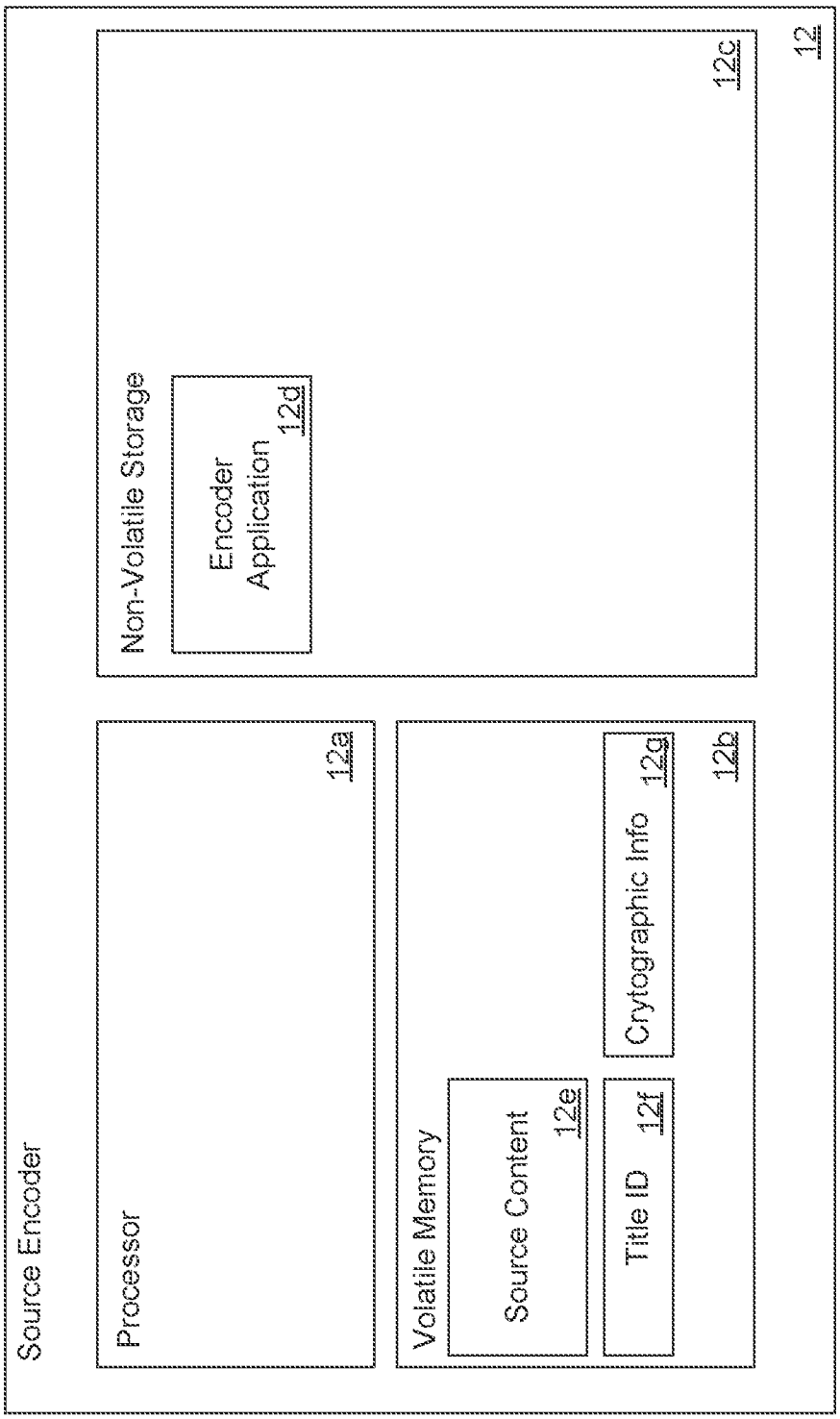

Source Encoder
Processor
12a
Volatile Memory
Source Content
12e
Title ID
12f
Crytographic Info
12g
12b
Non-Volatile Storage
Encoder Application
12d
12c
12

FIG. 1B

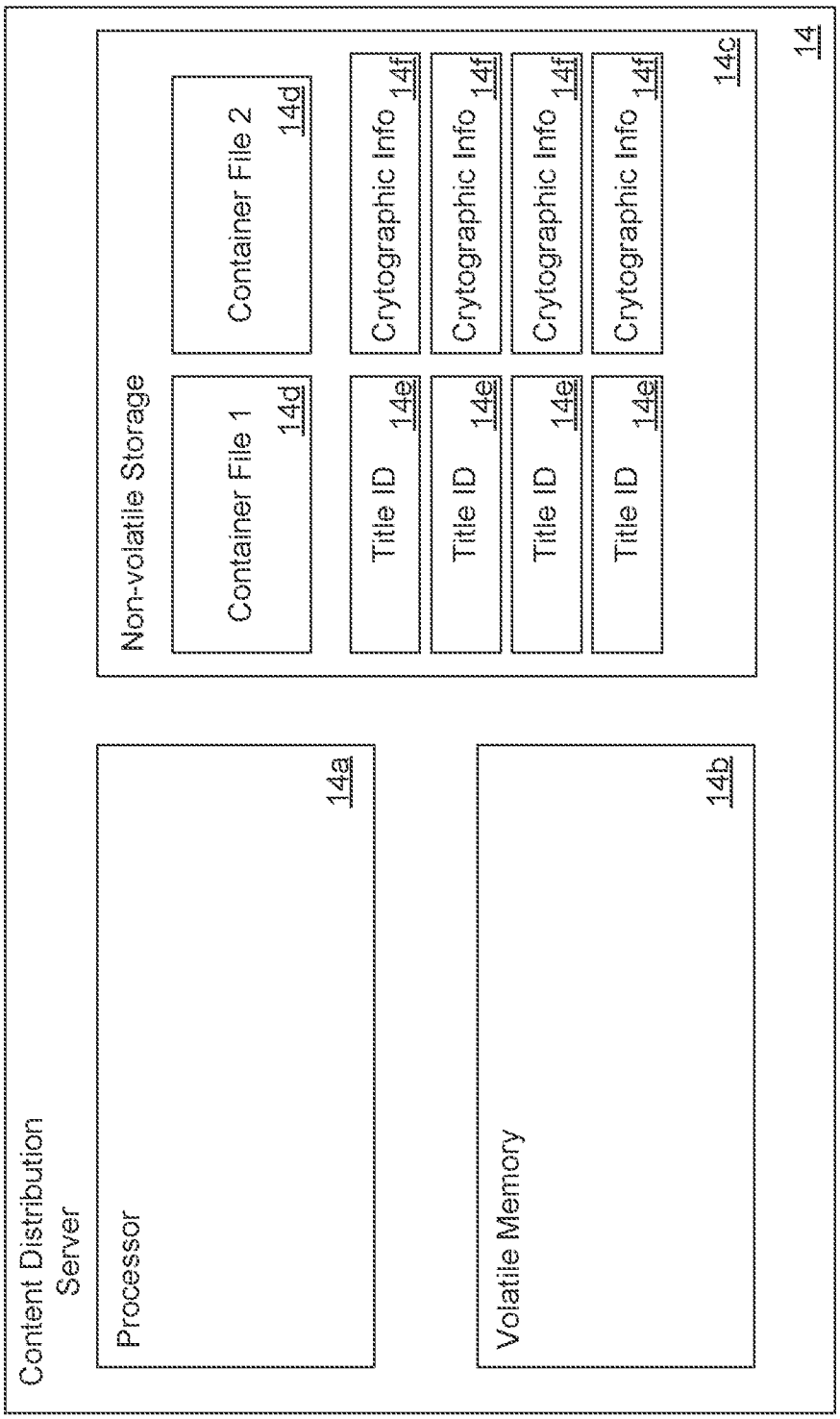

Content Distribution Server
14
Processor
14a
Volatile Memory
14b
Non-volatile Storage
14c
Container File 1
14d
Container File 2
14d
Title ID
14e
Title ID
14e
Title ID
14e
Title ID
14e
Crytographic Info
14f
Crytographic Info
14f
Crytographic Info
14f
Crytographic Info
14f

FIG. 1C

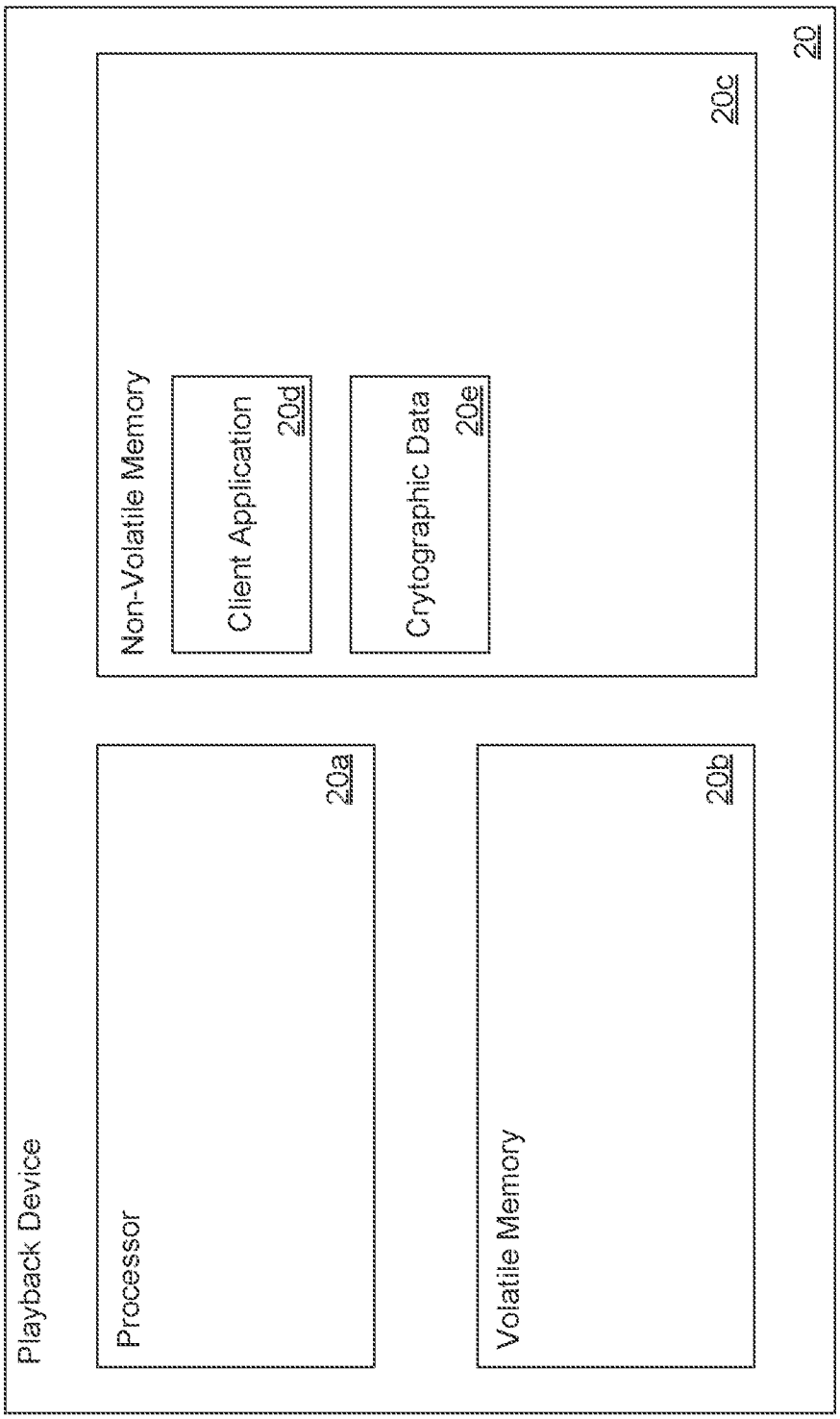

Playback Device
20
Processor
20a
Volatile Memory
20b
Non-Volatile Memory
20c
Client Application
20d
Crytographic Data
20e

FIG. 1D

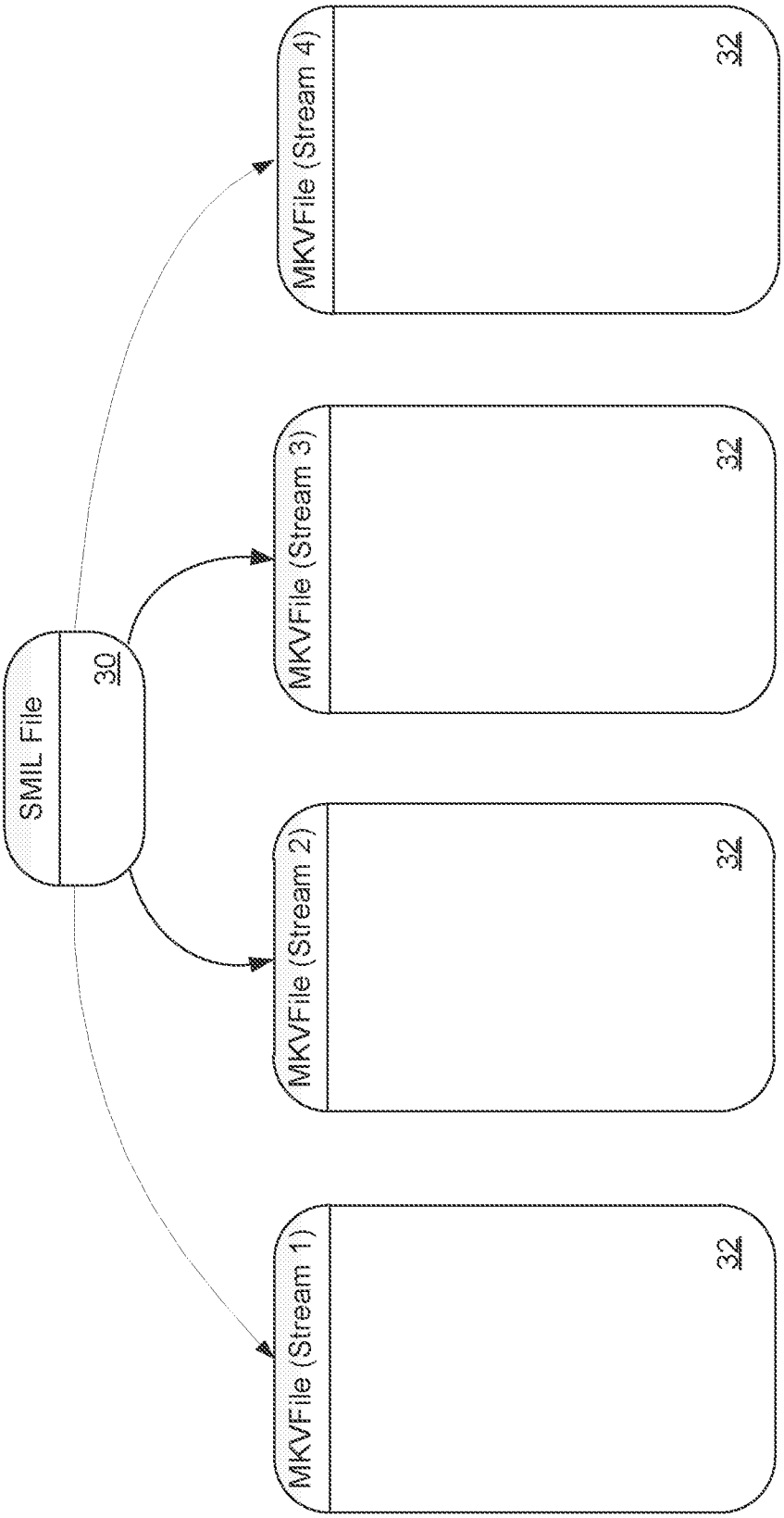

SMIL File
30
MKVFile (Stream 1)
32
MKVFile (Stream 2)
32
MKVFile (Stream 3)
32
MKVFile (Stream 4)
32

FIG. 2

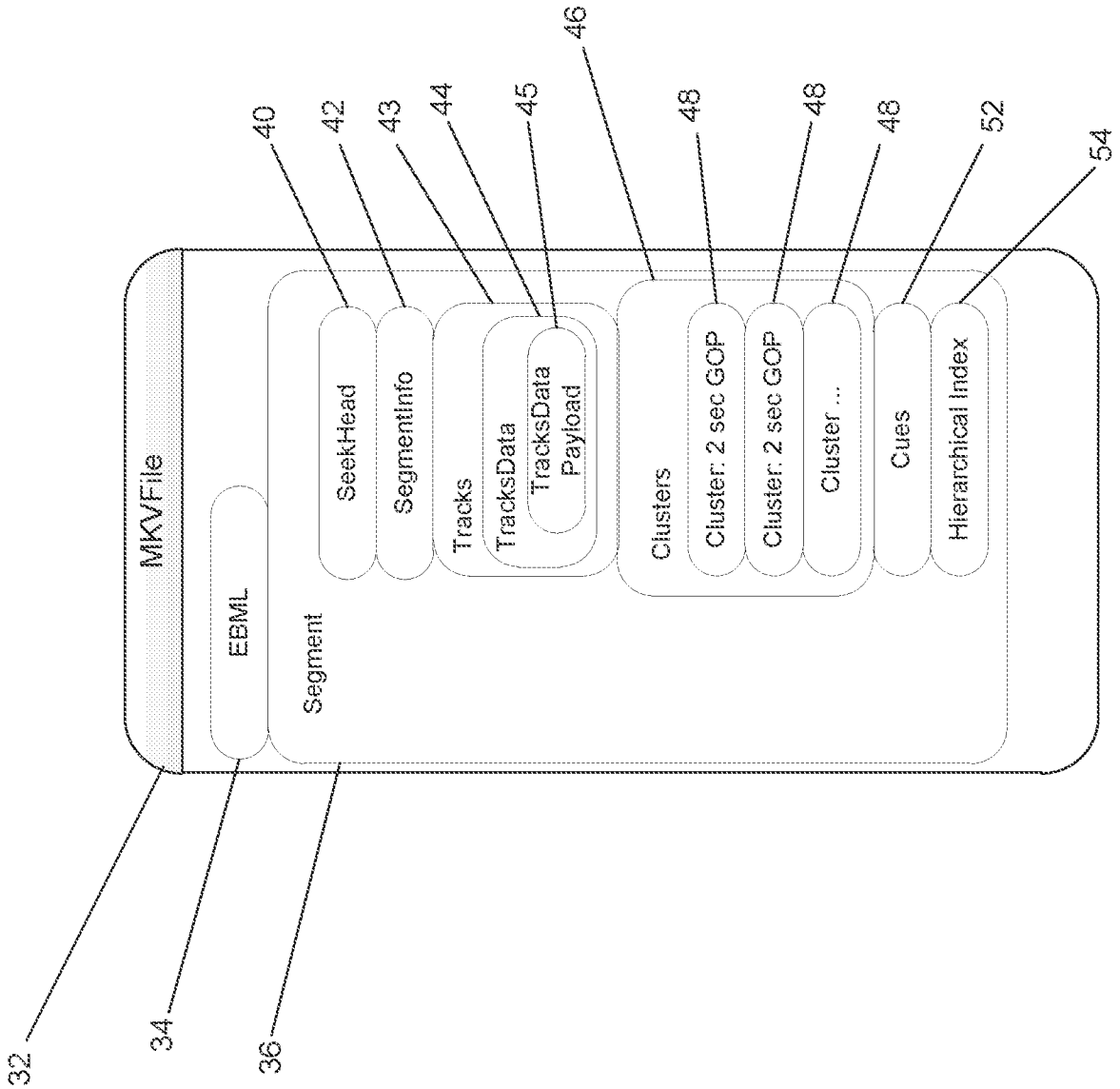

MKVFile
EBML
Segment
SeekHead
SegmentInfo
Tracks
TracksData
TracksData Payload
Clusters
Cluster: 2 sec GOP
Cluster: 2 sec GOP
Cluster ...
Cues
Hierarchical Index
32
34
36
40
42
43
44
45
46
48
48
48
52
54

FIG. 3

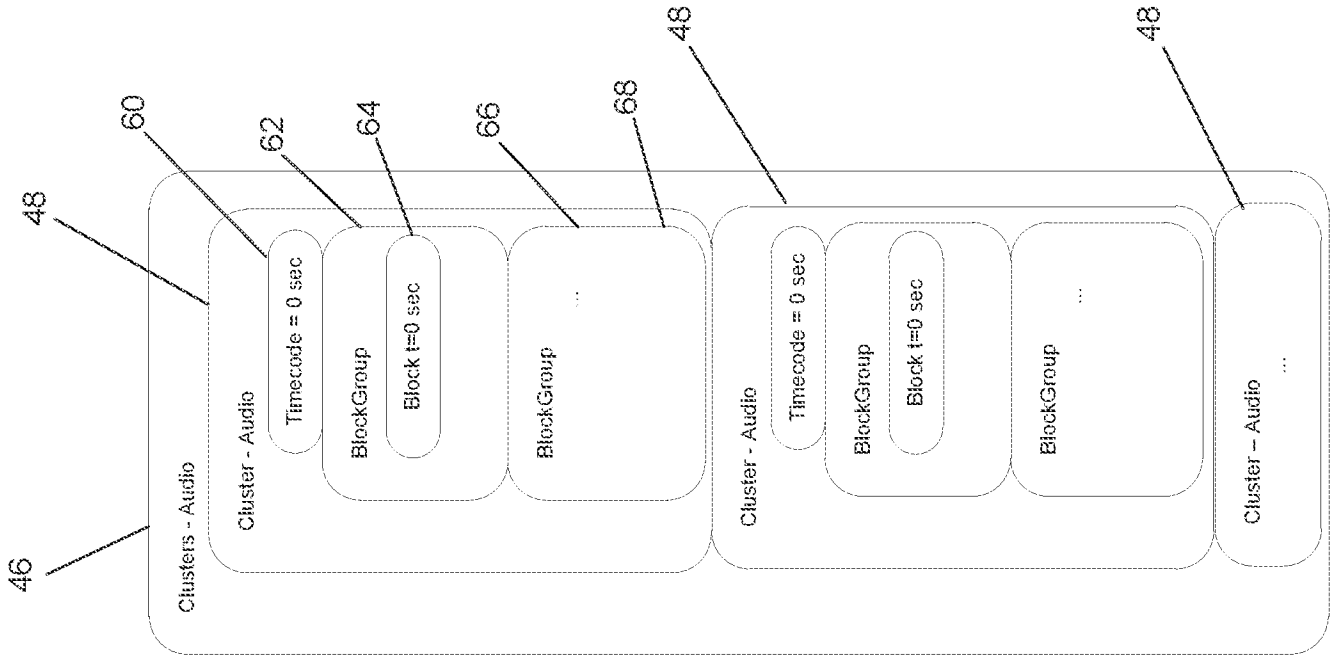

46
Clusters - Audio
48
Cluster - Audio
60
Timecode = 0 sec
62
BlockGroup
64
Block t=0 sec
66
BlockGroup
68
...
48
Cluster - Audio
Timecode = 0 sec
BlockGroup
Block t=0 sec
BlockGroup
...
48
Cluster – Audio
...

FIG. 4b

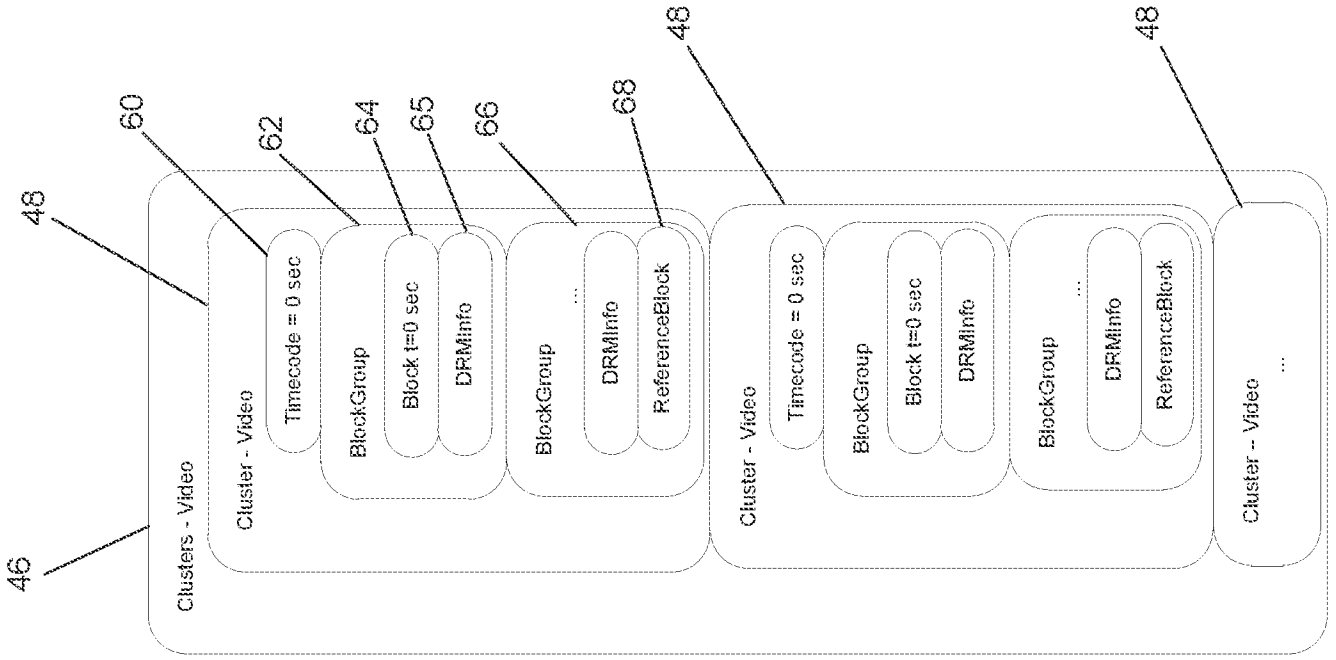

46
Clusters - Video
48
Cluster - Video
60
Timecode = 0 sec
62
BlockGroup
64
Block t=0 sec
65
DRMInfo
66
BlockGroup
...
68
DRMInfo
ReferenceBlock
48
Cluster - Video
Timecode = 0 sec
BlockGroup
Block t=0 sec
DRMInfo
BlockGroup
...
DRMInfo
ReferenceBlock
48
Cluster – Video
...

FIG. 4a


Clusters
48
Cluster
60
Timecode = 0 sec
62v
BlockGroup (Video)
64v
Block t=0 sec
65v
DRMInfo
62a
BlockGroup (Audio)
64a
Block t=0 sec
62s
BlockGroup (Subtitle)
64s
Block t=0 sec
48
Cluster
Timecode = 0 sec
BlockGroup (Video)
Block t=0 sec
DRMInfo
46
BlockGroup (Audio)
Block t=0 sec
BlockGroup (Subtitle)
Block t=0 sec
48
Cluster
...

FIG. 4d

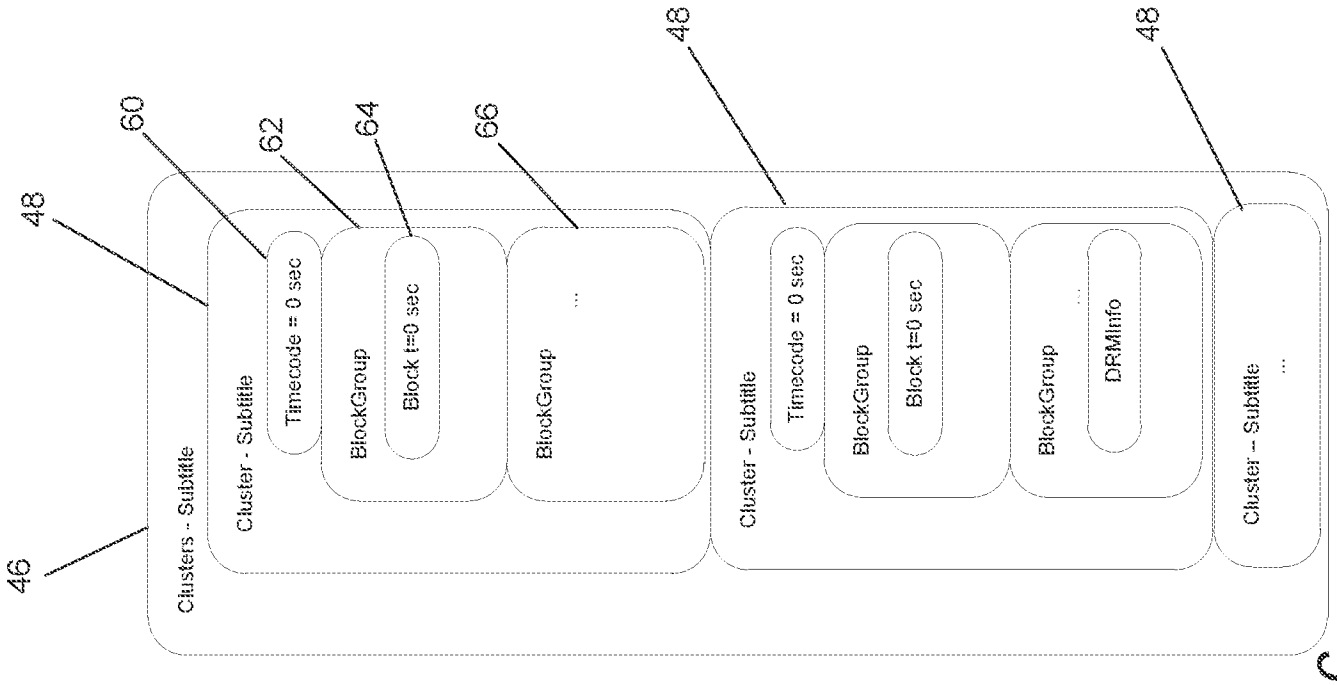

46
48
Clusters - Subtitle
60
Cluster - Subtitle
Timecode = 0 sec
62
BlockGroup
Block t=0 sec
64
66
BlockGroup
...
48
Cluster - Subtitle
Timecode = 0 sec
BlockGroup
Block t=0 sec
BlockGroup
...
DRMInfo
48
Cluster – Subtitle
...

FIG. 4c

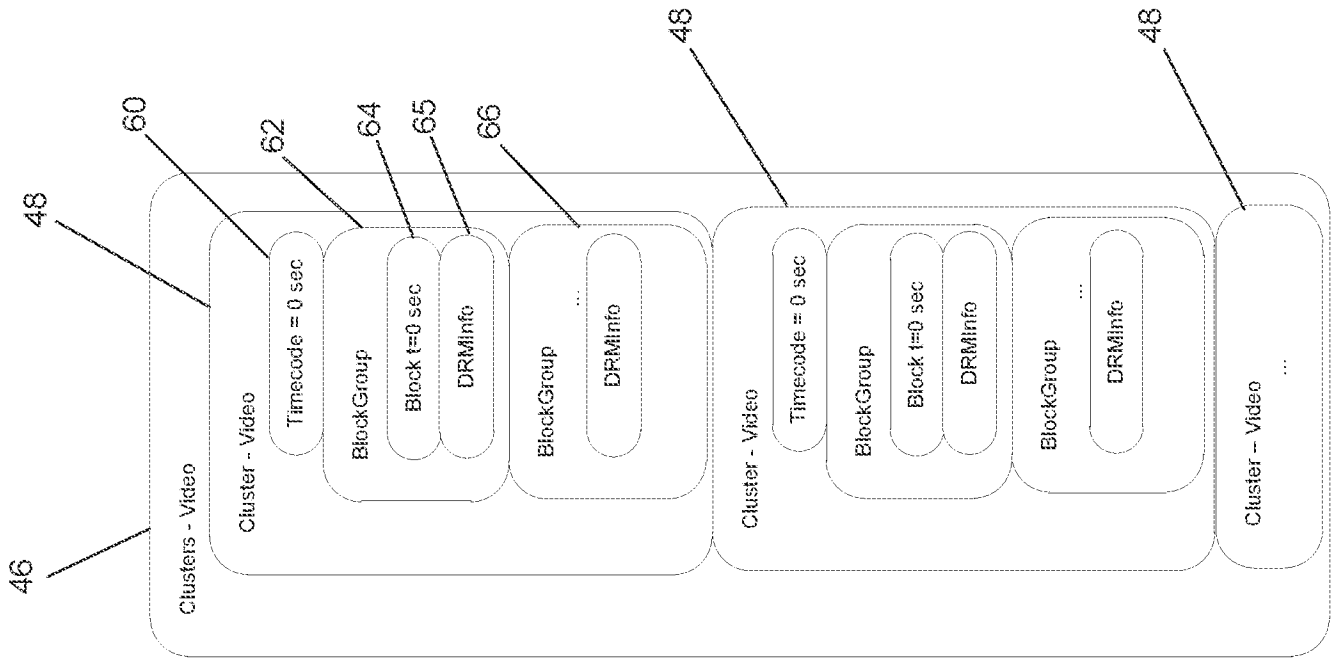

46
Clusters - Video
48
Cluster - Video
60
Timecode = 0 sec
62
BlockGroup
64
Block t=0 sec
65
DRMInfo
66
BlockGroup
...
DRMInfo
48
Cluster - Video
Timecode = 0 sec
BlockGroup
Block t=0 sec
DRMInfo
BlockGroup
...
DRMInfo
48
Cluster – Video
...

FIG. 4e

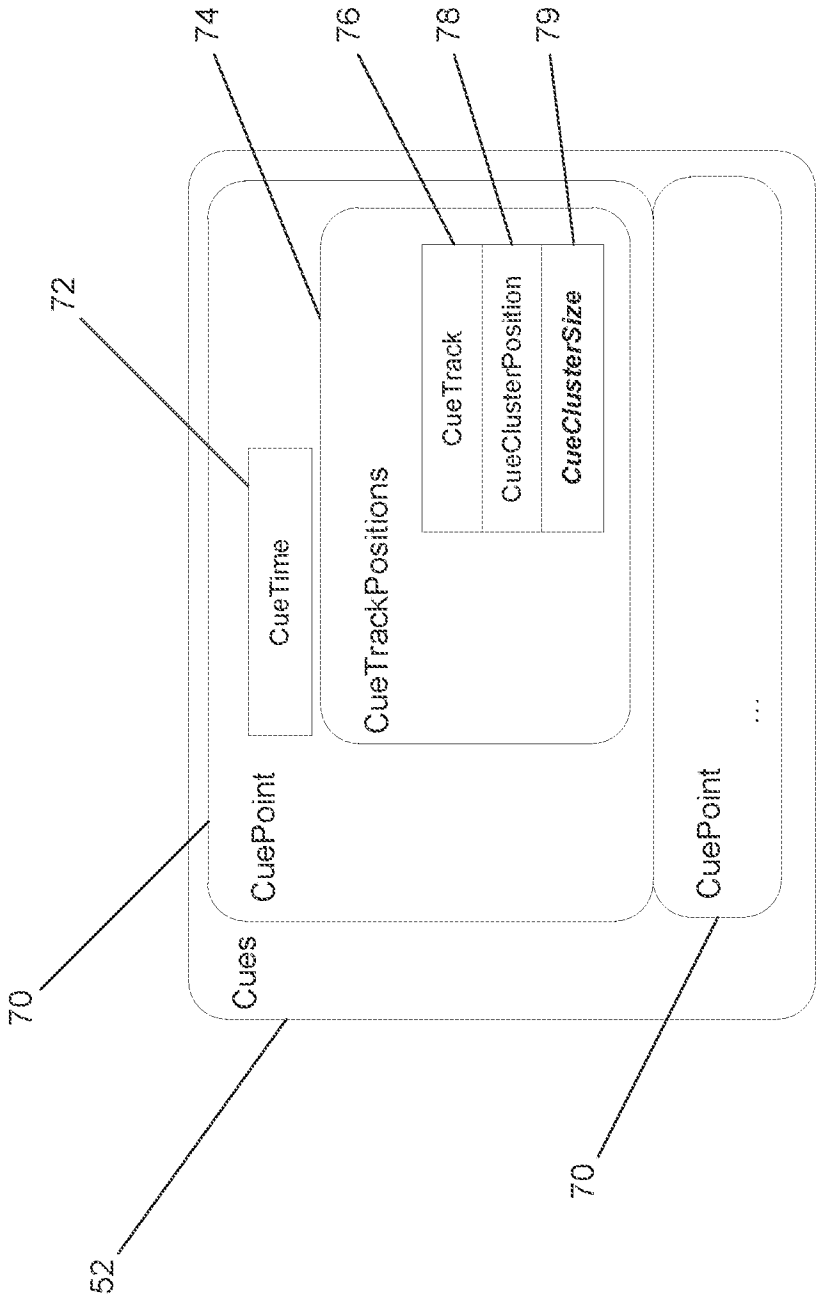

74
76
78
79
72
CueTime
CueTrackPositions
CueTrack
CueClusterPosition
CueClusterSize
CuePoint
Cues
70
52
CuePoint
...
70

FIG. 5

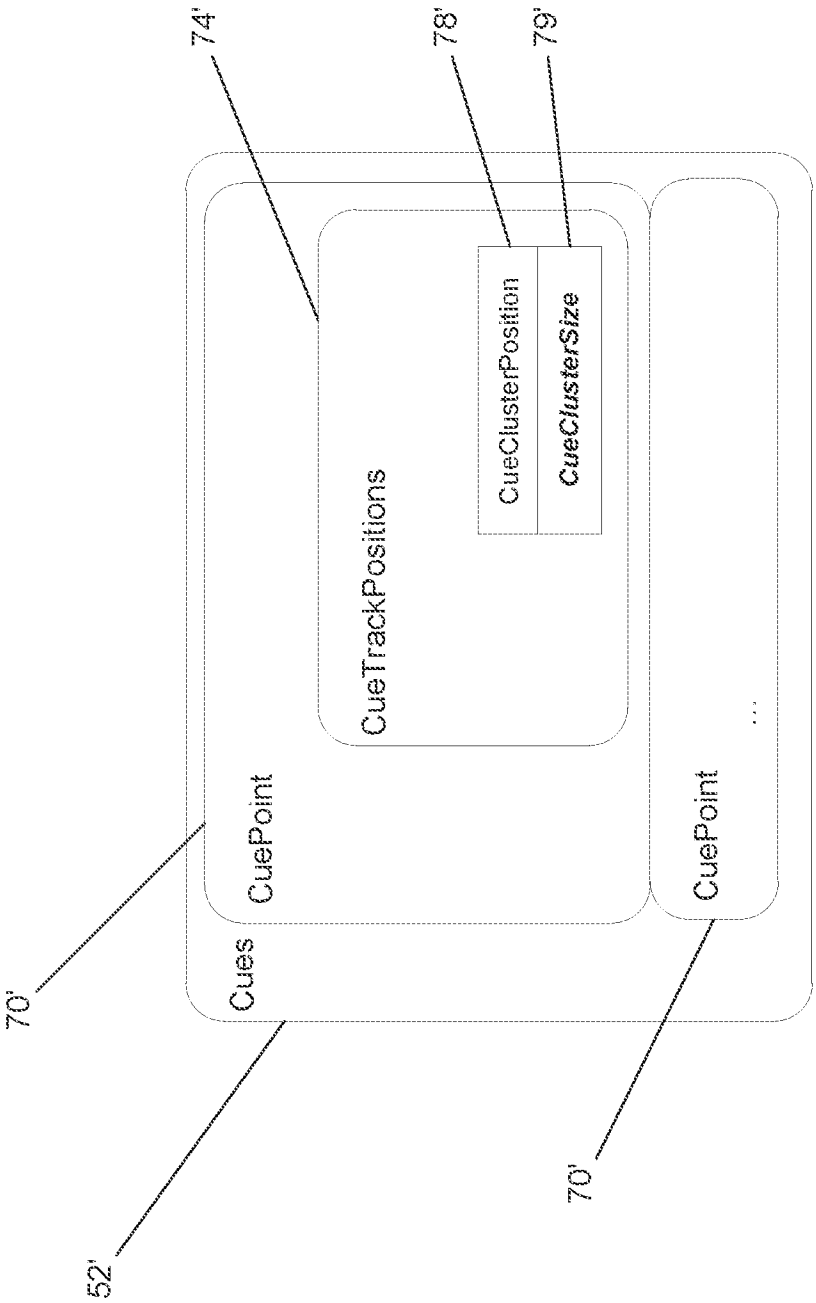

74'
78'
79'
CueClusterPosition
CueClusterSize
CueTrackPositions
CuePoint
Cues
70'
52'
CuePoint
...
70'

FIG. 5a

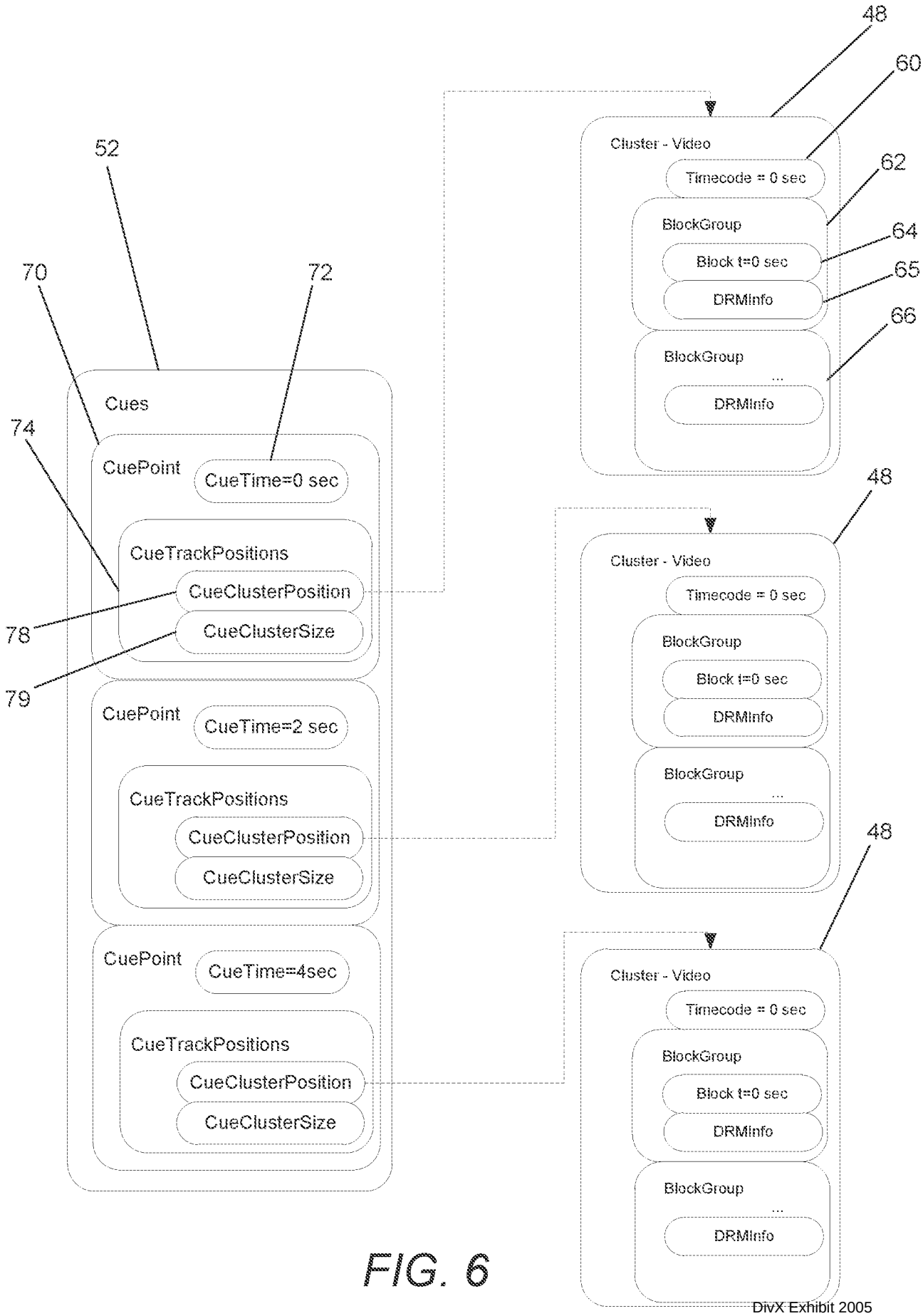

48
60
52
Cluster - Video
Timecode = 0 sec
62
BlockGroup
64
Block t=0 sec
65
DRMInfo
66
BlockGroup
...
DRMInfo
70
72
Cues
74
CuePoint
CueTime=0 sec
CueTrackPositions
CueClusterPosition
78
CueClusterSize
79
CuePoint
CueTime=2 sec
CueTrackPositions
CueClusterPosition
CueClusterSize
CuePoint
CueTime=4sec
CueTrackPositions
CueClusterPosition
CueClusterSize
48
Cluster - Video
Timecode = 0 sec
BlockGroup
Block t=0 sec
DRMInfo
BlockGroup
...
DRMInfo
48
Cluster - Video
Timecode = 0 sec
BlockGroup
Block t=0 sec
DRMInfo
BlockGroup
...
DRMInfo

FIG. 6

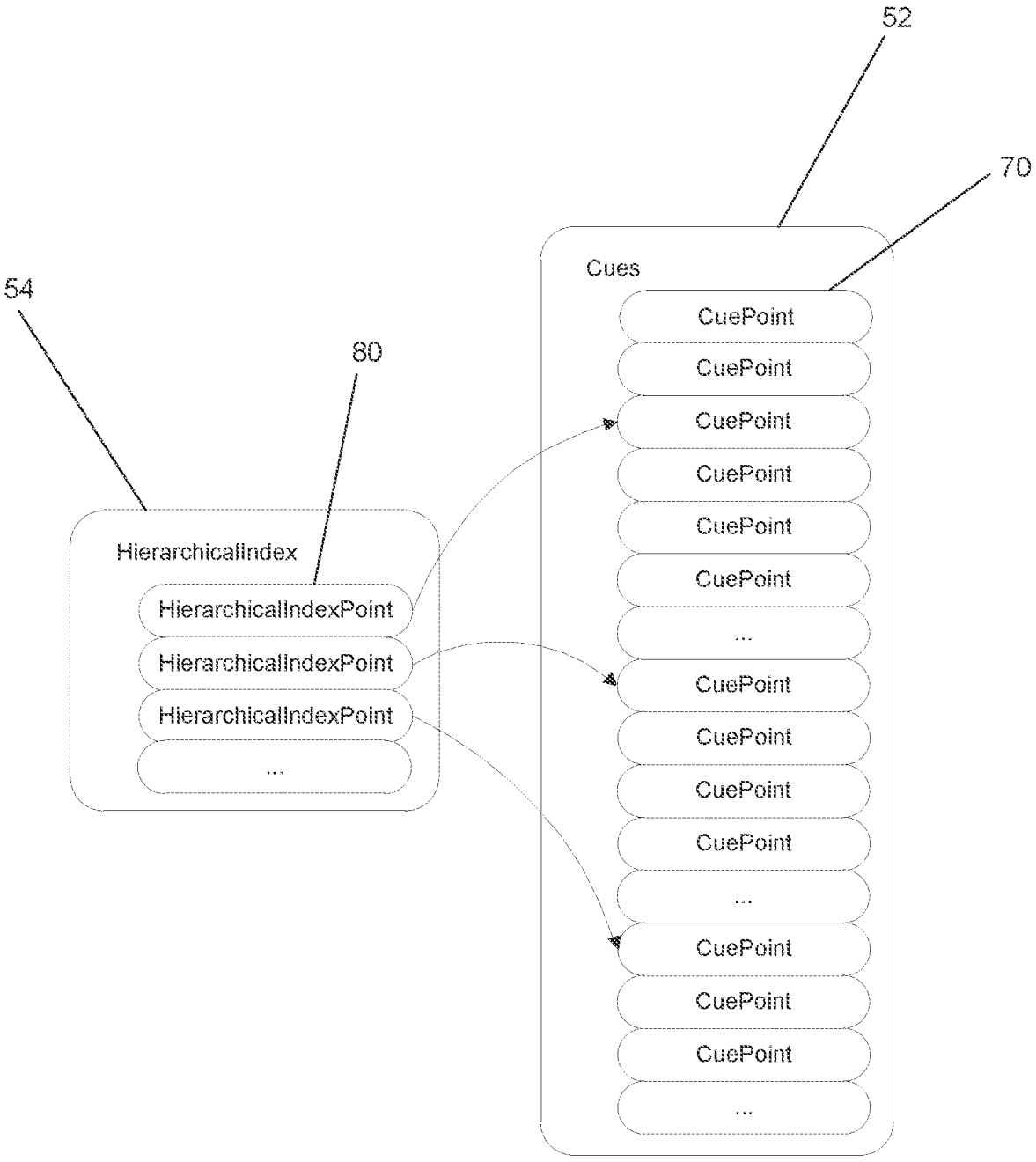

52
70
54
80
Cues
CuePoint
CuePoint
CuePoint
CuePoint
CuePoint
CuePoint
...
CuePoint
CuePoint
CuePoint
CuePoint
...
CuePoint
CuePoint
CuePoint
...
HierarchicalIndex
HierarchicalIndexPoint
HierarchicalIndexPoint
HierarchicalIndexPoint
...

FIG. 7

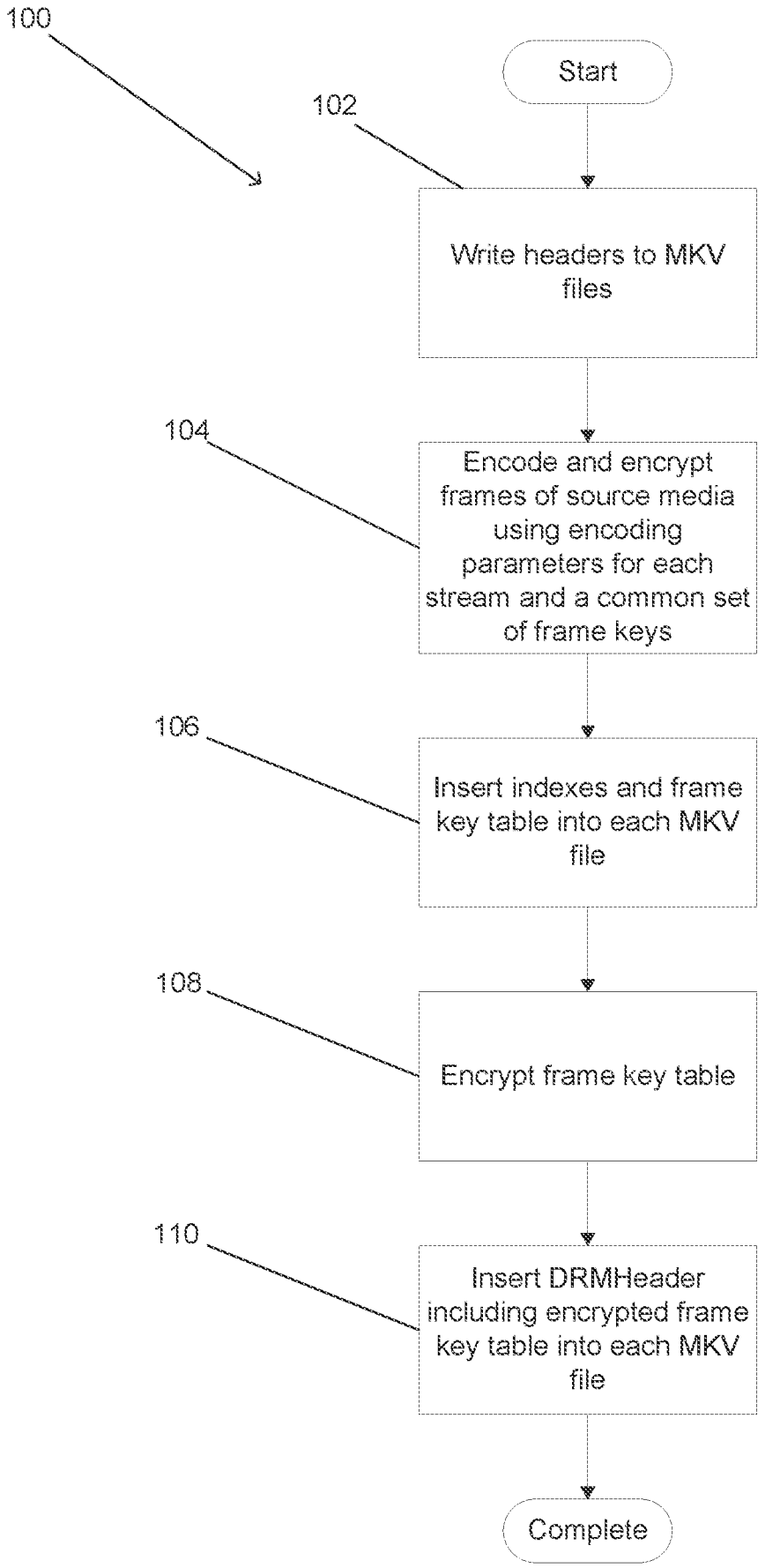

100
Start
102
Write headers to MKV files
104
Encode and encrypt frames of source media using encoding parameters for each stream and a common set of frame keys
106
Insert indexes and frame key table into each MKV file
108
Encrypt frame key table
110
Insert DRMHeader including encrypted frame key table into each MKV file
Complete

FIG. 8

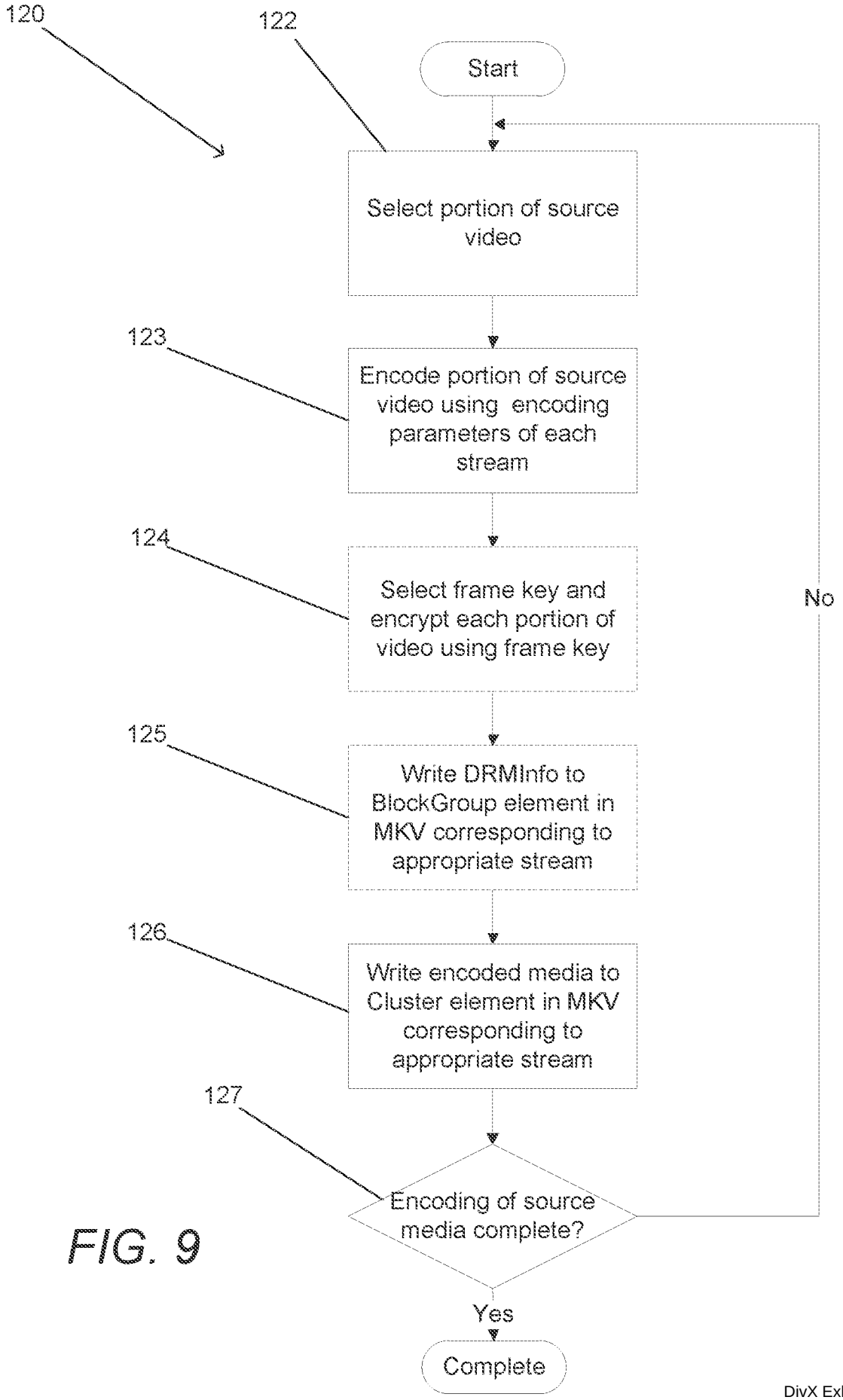

120
122
Start
Select portion of source video
123
Encode portion of source video using encoding parameters of each stream
124
Select frame key and encrypt each portion of video using frame key
125
Write DRMInfo to BlockGroup element in MKV corresponding to appropriate stream
126
Write encoded media to Cluster element in MKV corresponding to appropriate stream
127
Encoding of source media complete?
No
Yes
Complete

FIG. 9

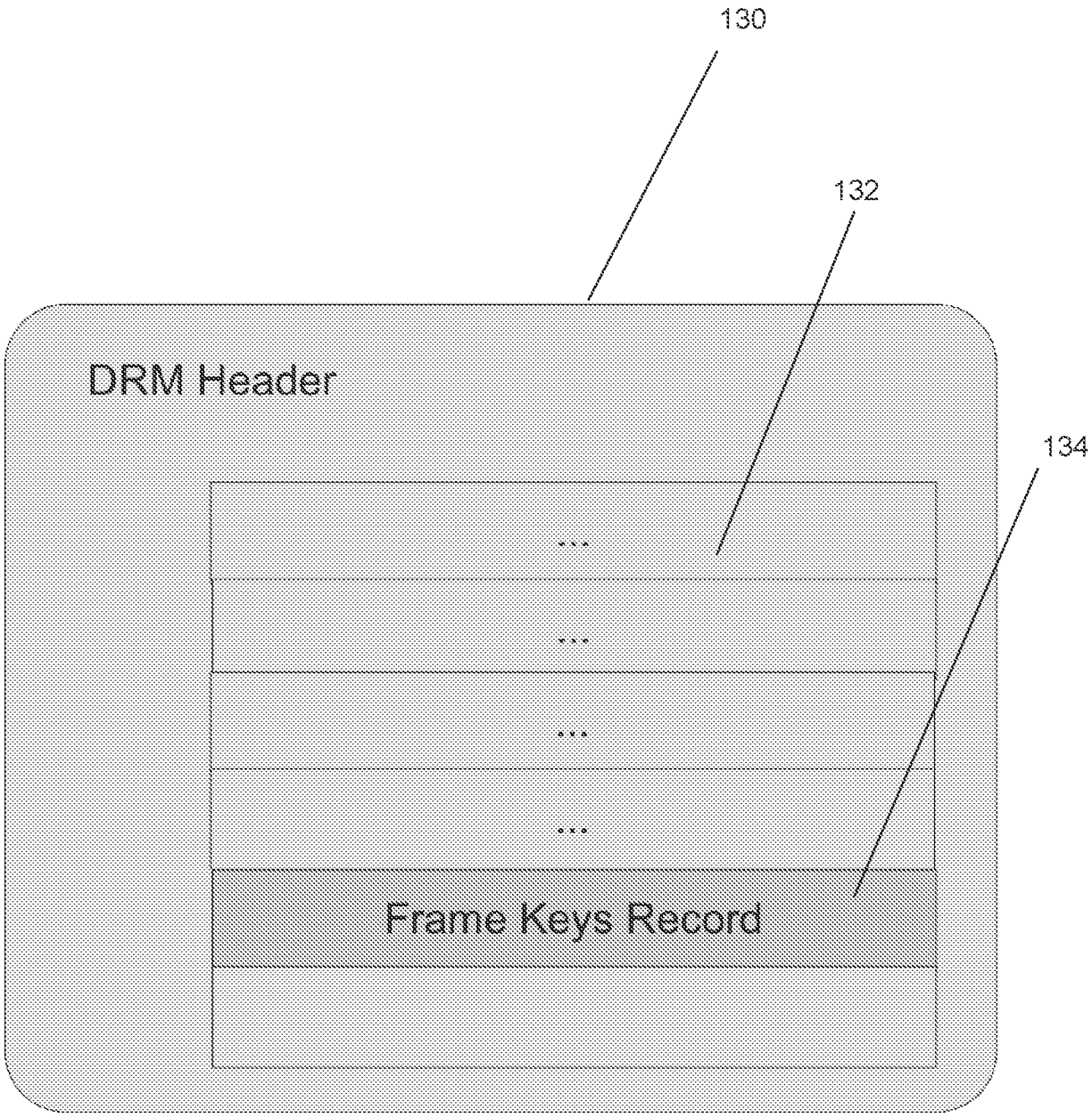


FIG. 10

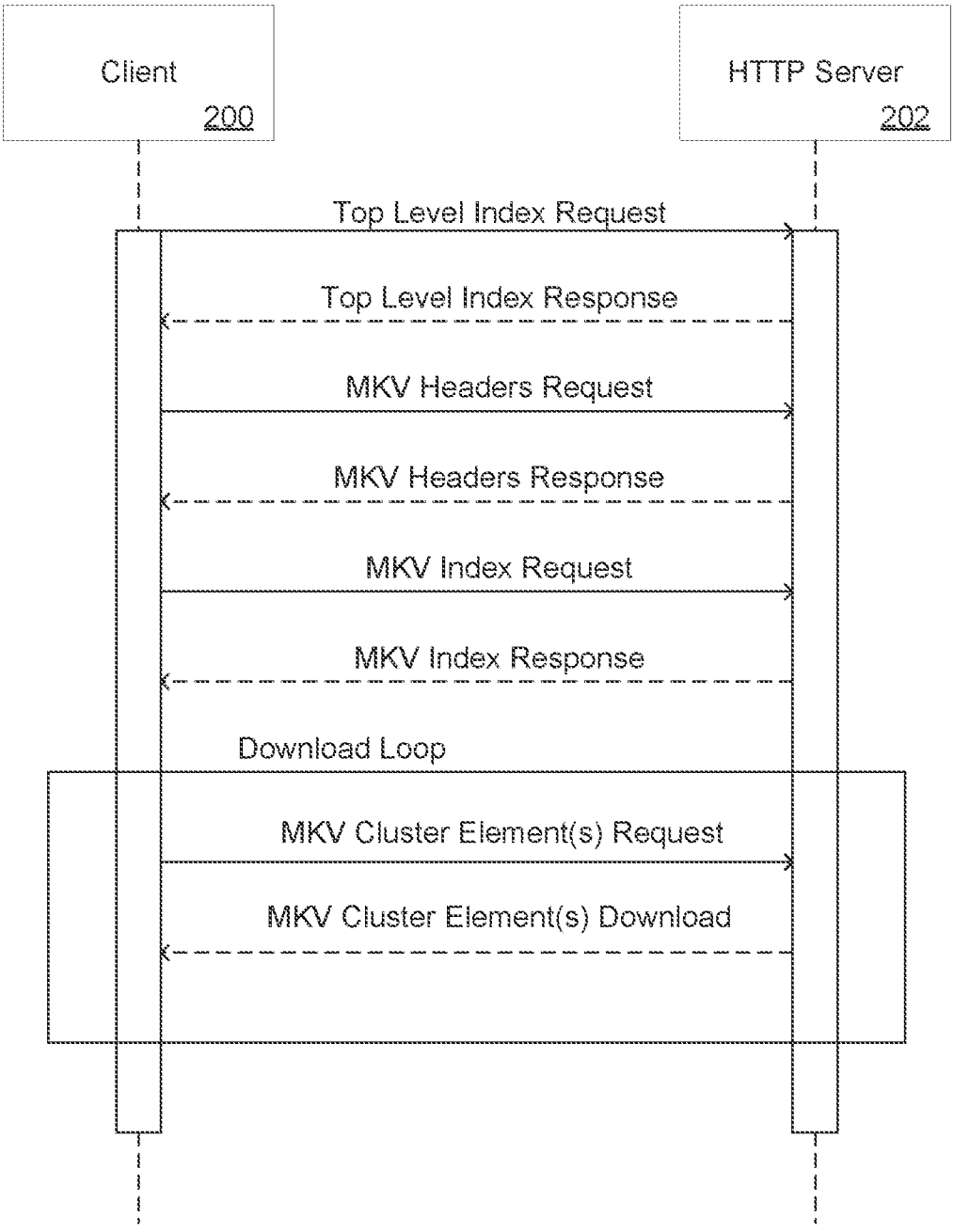

Client
200
HTTP Server
202
Top Level Index Request
Top Level Index Response
MKV Headers Request
MKV Headers Response
MKV Index Request
MKV Index Response
Download Loop
MKV Cluster Element(s) Request
MKV Cluster Element(s) Download

FIG. 11

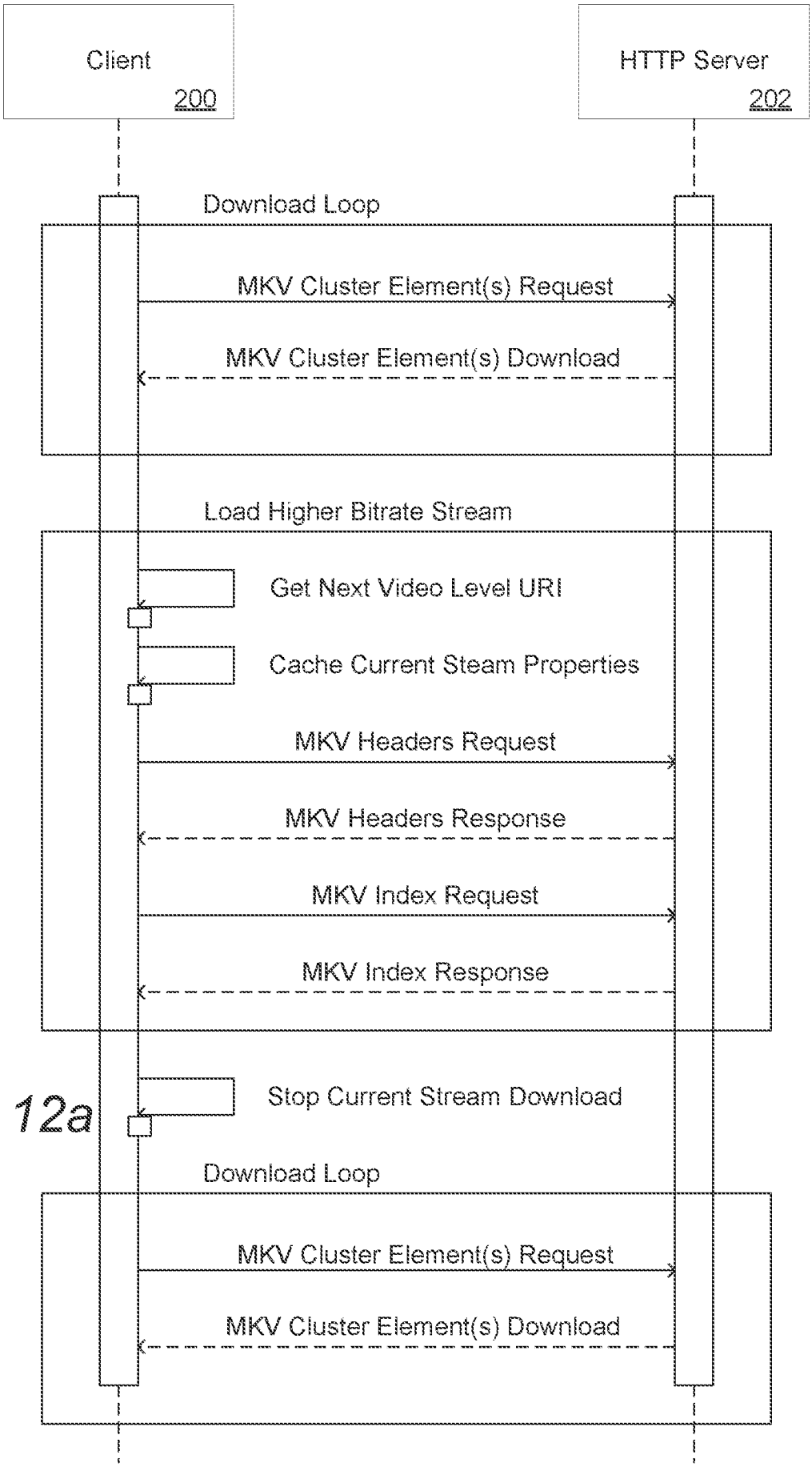

Client
200
HTTP Server
202
Download Loop
MKV Cluster Element(s) Request
MKV Cluster Element(s) Download
Load Higher Bitrate Stream
Get Next Video Level URI
Cache Current Steam Properties
MKV Headers Request
MKV Headers Response
MKV Index Request
MKV Index Response
Stop Current Stream Download
Download Loop
MKV Cluster Element(s) Request
MKV Cluster Element(s) Download

FIG. 12a

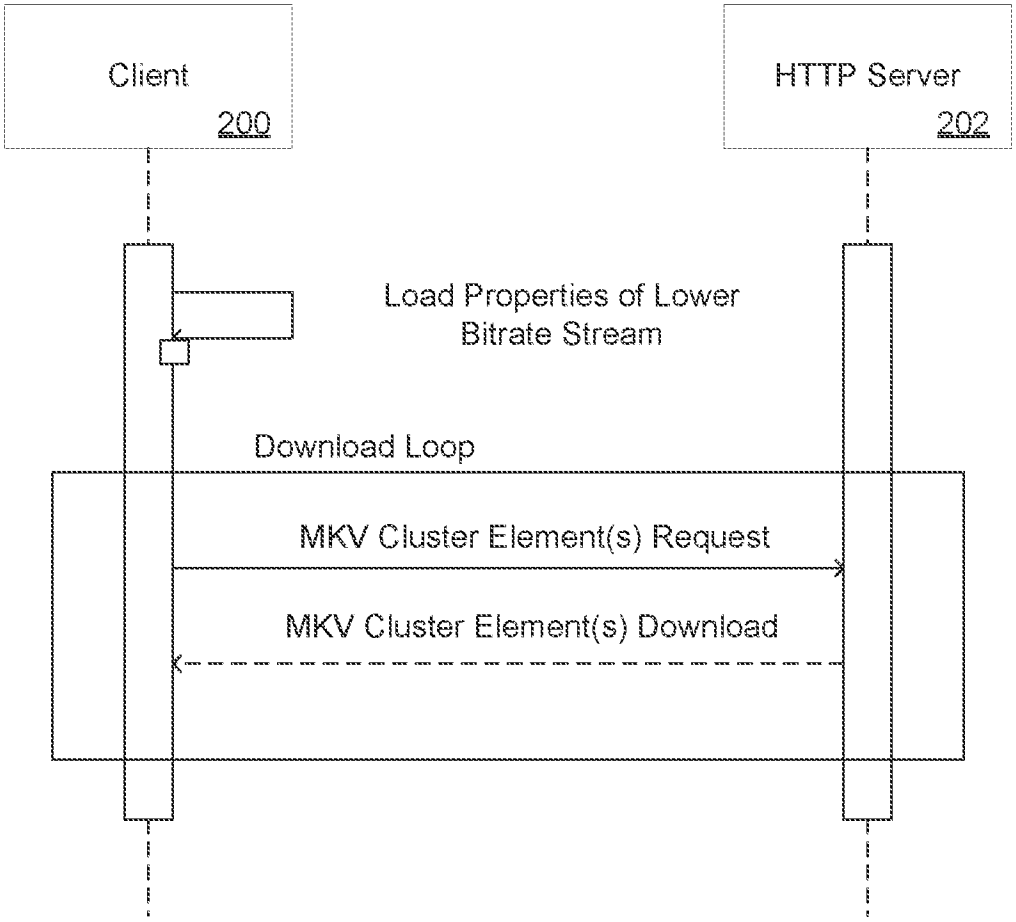

Client
200
HTTP Server
202
Load Properties of Lower Bitrate Stream
Download Loop
MKV Cluster Element(s) Request
MKV Cluster Element(s) Download

FIG. 12b

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Filer:	Jason Daniel Wolfe/Katrina Lee
Attorney Docket Number:	D1-02359A.CON2

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Late Filing Fee for Oath or Declaration	1051	1	140	140
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1740**

Electronic Acknowledgement Receipt

EFS ID:	24372720
Application Number:	14970412
International Application Number:	
Confirmation Number:	5115
Title of Invention:	Systems and Methods for Playing Back Alternative Streams of Protected Content Protected Using Common Cryptographic Information
First Named Inventor/Applicant Name:	Michael George Kiefer
Customer Number:	71897
Filer:	Jason Daniel Wolfe/Katrina Lee
Filer Authorized By:	Jason Daniel Wolfe
Attorney Docket Number:	D1-02359A.CON2
Receipt Date:	15-DEC-2015
Filing Date:	
Time Stamp:	20:08:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1740
RAM confirmation Number	7349
Deposit Account	504407
Authorized User	BAILEY, DAVID

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	02359acon2applicationdatasheet.pdf	106801 6718bd46e5733bec7cc9945a77b953266e313f56	no	8
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
2		02359acon2specification.pdf	164764 d46d8d6688383ca59ffd7621482a28971218ba25	yes	49

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	43
Claims	44	48
Abstract	49	49

Warnings:					
Information:					
3	Drawings-only black and white line drawings	02359acon2drawings.pdf	216269 da53e3663e0de3b90236b79e7140fc6b6ab9f47b	no	19
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	37051 e462ca5fc8f89fc356433056ad5b47750a04dd53	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	524885		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

SCORE Placeholder Sheet for IFW Content

Application Number: 14970412 Document Date: 12/15/2015

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions below.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (http://Score.uspto.gov/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Form Revision Date: September 30, 2013