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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/538,911	11/06/2018	10123074	162774.00101	8633

29880 7590 10/17/2018
FOX ROTHSCHILD LLP
PRINCETON PIKE CORPORATE CENTER
997 LENOX DRIVE
BLDG. #3
LAWRENCEVILLE, NJ 08648

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):

Edwin A. HERNANDEZ-MONDRAGON, Coral Springs, FL;

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.

PART B - FEE(S) TRANSMITTAL

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

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.

29880 7990 06/29/2018
FOX ROTHSCHILD LLP
PRINCETON PIKE CORPORATE CENTER
997 LENOX DRIVE
BLDG. #3
LAWRENCEVILLE, NEW JERSEY 08648
UNITED STATES OF AMERICA

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.
15/538,911	06/22/2017	Edwin A. HERNANDEZ-MONDRAGON	162774.00101	8633

TITLE OF INVENTION: METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS

APPL. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	10/01/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
LONSBERRY, HUNTER B	2424	725-139000

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 **Fox Rothschild LLP**
 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 **50-1943** (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
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

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.

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.

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 Carol E. Thorstad-Forsyth Date 2018-09-28

Typed or printed name Carol E. Thorstad-Forsyth Registration No. 56456

Electronic Patent Application Fee Transmittal				
Application Number:		15538911		
Filing Date:		22-Jun-2017		
Title of Invention:		METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		
First Named Inventor/Applicant Name:		Edwin A. HERNANDEZ-MONDRAGON		
Filer:		Carol E. Thorstad Forsyth/Shannon Vieau		
Attorney Docket Number:		162774.00101		
Filed as Small Entity				
Filing Fees for U.S. National Stage under 35 USC 371				
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	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				500

Electronic Acknowledgement Receipt	
EFS ID:	33859651
Application Number:	15538911
International Application Number:	
Confirmation Number:	8633
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
First Named Inventor/Applicant Name:	Edwin A. HERNANDEZ-MONDRAGON
Customer Number:	29880
Filer:	Carol E. Thorstad Forsyth/Shannon Vieau
Filer Authorized By:	Carol E. Thorstad Forsyth
Attorney Docket Number:	162774.00101
Receipt Date:	28-SEP-2018
Filing Date:	22-JUN-2017
Time Stamp:	11:47:34
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 500
RAM confirmation Number	100118INTEFSW11482200
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

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)	16277400101-IssueFeeTransmittal.pdf	497678	no	1
			19de896f6599eda48d9d5cb7b4641db169b1d56		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30614	no	2
			7954a19394a8fb98c81fcb139b3cc5a4262b16ed		
Warnings:					
Information:					
Total Files Size (in bytes):			528292		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edwin A. Hernandez-Mondragon

Application No.: 15/538,911

Art Unit: 2424

Filed: June 22, 2017

Confirmation No.: 8633

For: METHOD, SYSTEM, AND APPARATUS FOR
MULTIMEDIA CONTENT DELIVERY TO CABLE
TV AND SATELLITE OPERATORS

Examiner: LONSBERRY

RESPONSE TO NOTICE REQUIRING INVENTOR'S OATH OR DECLARATION

MS Patent Publication Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice Requiring Inventor's Oath or Declaration dated July 19, 2018 in the above-identified application, Applicant submits herewith a corrected Application Data Sheet providing the inventor's residence.

Applicant believes that no fee is due with this response. However, if a fee is due, please charge Deposit Account No. 50-1943, under Order No. 162774.00101, from which the undersigned is authorized to draw.

Dated: August 9, 2018

Respectfully submitted,

Electronic Signature: /Carol E. Thorstad-Forsyth/
Carol E. Thorstad-Forsyth
Registration No.: 56,455
FOX ROTHSCHILD LLP
997 Lenox Drive, Building 3
Lawrenceville, New Jersey 08648-2311
(561) 804-4438
(609) 896-1469 (Fax)
Attorneys/Agents For Applicant

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	162774.00101
		Application Number	15538911
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		
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 <u>1</u>					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name		Suffix	
	Edwin	A.	HERNANDEZ-MONDRAGON			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Coral Springs	State/Province	FL	Country of Residence	US	
Mailing Address of Inventor:						
Address 1		4890 NW 101 Avenue				
Address 2						
City	Coral Springs	State/Province	FL			
Postal Code	33076	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	29880		
Email Address	ipdocket@foxrothschild.com	Add Email	Remove Email

Application Information:

Title of the Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		
Attorney Docket Number	162774.00101	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	12	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	<u>162774.00101</u>
		Application Number	<u>15538911</u>
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		

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.

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	<u>29880</u>		

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	<u>Pending</u>	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
<u>15538911</u>	<u>a 371 of international</u>	<u>PCT/US15/67464</u>	<u>2015-12-22</u>

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	162774.00101
		Application Number	15538911
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		

Prior Application Status	Expired	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
PCT/US15/67464	Claims benefit of provisional	62095504	2014-12-22
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Foreign Priority 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), 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).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱⁱ 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	<u>162774.00101</u>
	Application Number	<u>15538911</u>
Title of Invention	<u>METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS</u>	

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	<u>162774.00101</u>
	Application Number	<u>15538911</u>
Title of Invention <u>METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS</u>		

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. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Applicant:				
Address 1				
Address 2				
City		State/Province		
Country		Postal Code		
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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	<u>162774.00101</u>
		Application Number	<u>15538911</u>
Title of Invention	<u>METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS</u>		

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. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country ⁱ		Postal Code		
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	/Carol E. Thorstad-Forsyth/			Date (YYYY-MM-DD)	2018-08-09
First Name	Carol E.	Last Name	Thorstad-Forsyth	Registration Number	56455
Additional Signature may be generated within this form by selecting the Add button.					

Electronic Acknowledgement Receipt	
EFS ID:	33425078
Application Number:	15538911
International Application Number:	
Confirmation Number:	8633
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
First Named Inventor/Applicant Name:	Edwin A. HERNANDEZ-MONDRAGON
Customer Number:	29880
Filer:	Carol E. Thorstad Forsyth/Shannon Vieau
Filer Authorized By:	Carol E. Thorstad Forsyth
Attorney Docket Number:	162774.00101
Receipt Date:	09-AUG-2018
Filing Date:	22-JUN-2017
Time Stamp:	15:40:56
Application Type:	U.S. National Stage under 35 USC 371

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	Miscellaneous Incoming Letter	16277400101- TransmittalLetter.pdf	5190	no	1
			6782146d988f426f393c298d79227f641233624d		
Warnings:					

Information:					
2	Application Data Sheet	16277400101-CorrectedADS.pdf	1823417	no	6
			9559ec9abb54784d1cd047f51494c51c64624d45		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):			1828607		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/538,911	06/22/2017	Edwin A. HERNANDEZ-MONDRAGON	162774.00101	8633
7590 FOX ROTHSCHILD LLP PRINCETON PIKE CORPORATE CENTER 997 LENOX DRIVE BLDG. #3 LAWRENCEVILLE, NJ 08648			EXAMINER LONSBERRY, HUNTER B	
			ART UNIT 2424	PAPER NUMBER
			NOTIFICATION DATE 07/19/2018	DELIVERY MODE ELECTRONIC

NOTICE REQUIRING INVENTOR'S OATH OR DECLARATION

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

The inventor's oath or declaration or substitute statement dated 06/26/2017 is defective. The inventor's oath or declaration does not comply with 37 CFR 1.63 or the substitute statement does not comply with 37 CFR 1.64 because it:

☐ does not include a statement that the person executing the oath or declaration or substitute statement believes the named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application for which the oath or declaration is being submitted.

☐ does not state that the application was made or was authorized to be made by the person executing the oath or declaration or substitute statement.

☐ does not acknowledge that any willful false statement made in such oath or declaration or substitute statement is punishable under section 1001 of title 18 by fine or imprisonment of not more than 5 years, or both.

☐ does not identify the person executing the oath or declaration or substitute statement by his or her legal name.

☐ does not identify the application to which the oath or declaration or substitute statement is directed.

☒ Other: The OATH/DECLARATION does not identify the residence (e.g. city and either state or foreign country) of each inventor.

The substitute statement dated _____ does not comply with 37 CFR 1.64 because it:

☐ does not identify the inventor with respect to whom the statement applies.

☐ does not identify the relationship to the non-signing inventor.

☐ does not identify the circumstances permitting execution of the statement.

☐ was signed by someone other than the applicant.

☐ Other: _____

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 **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. This period for reply is not extendable under 37 CFR 1.136(a).

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

(571)-272-4200 or 1(888)-786-0101

Patent Publication Branch

Office of Data Management



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NOTICE OF ALLOWANCE AND FEE(S) DUE

29880 7590 06/29/2018
FOX ROTHSCHILD LLP
PRINCETON PIKE CORPORATE CENTER
997 LENOX DRIVE
BLDG. #3
LAWRENCEVILLE, NEW JERSEY 08648
UNITED STATES OF AMERICA

EXAMINER

LONSBERRY, HUNTER B

ART UNIT

PAPER NUMBER

2424

DATE MAILED: 06/29/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/538,911	06/22/2017	Edwin A. HERNANDEZ-MONDRAGON	162774.00101	8633

TITLE OF INVENTION: METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	10/01/2018

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)

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.

29880 7590 06/29/2018
FOX ROTHSCHILD LLP
PRINCETON PIKE CORPORATE CENTER
997 LENOX DRIVE
BLDG. #3
LAWRENCEVILLE, NEW JERSEY 08648
UNITED STATES OF AMERICA

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.
15/538,911	06/22/2017	Edwin A. HERNANDEZ-MONDRAGON	162774.00101	8633

TITLE OF INVENTION: METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	10/01/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
LONSBERRY, HUNTER B	2424	725-139000

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
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

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.

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.

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. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/538,911	06/22/2017	Edwin A. HERNANDEZ-MONDRAGON	162774.00101	8633
29880	7590	06/29/2018	EXAMINER	
FOX ROTHSCHILD LLP PRINCETON PIKE CORPORATE CENTER 997 LENOX DRIVE BLDG. #3 LAWRENCEVILLE, NEW JERSEY 08648 UNITED STATES OF AMERICA			LONSBERRY, HUNTER B	
			ART UNIT	PAPER NUMBER
			2424	
			DATE MAILED: 06/29/2018	

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.

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. 15/538,911	Applicant(s) HERNANDEZ-MONDRAGON, Edwin A.	
	Examiner HUNTER B LONSBERRY	Art Unit 2424	AIA Status Yes

-- 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 3/15/18.
☐ 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 1-21. 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)	5. ☐ Examiner's Amendment/Comment
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/HUNTER B LONSBERRY/ Primary Examiner, Art Unit 2424	
---	--

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance:

Applicant's arguments in light of the amendments are fully persuasive with respect to Reynolds.

While it is known in the art to have multiple screen shots of a webpage (for example web.archive.org grabs entire webpages at different points of time), and it is known to get a screen capture of content to create an index for an electronic program guide (for example US 2010/0192178 A1, US 2008/0098426 A1), but none of these would result in applicant's invention. At best they would teach repetitively screen capturing an electronic program guide, or scanning channels and capturing on screen data and OCRing it to build a program guide.

None of the art of record teaches the requesting feature, the multimedia items of different types, the rendering by a browser feature, the temporal sequence feature which includes a time and two adjacent times that illustrate a dynamic change of least a portion of the content over time, and captures the entire web page, assembling the stream into a media stream using the temporal sequence, and providing the media stream for broadcast on the broadcast media channel.

The examiner has fully considered the claims with respect to the 101 statute and finds them fully compliant.

Claims 1-21 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNTER B LONSBERRY whose telephone number is (571)272-7298. The examiner can normally be reached on M-F 8:00-21:00.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on (571)272-3011. 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.

HUNTER B. LONSBERRY
Primary Examiner
Art Unit 2424

/HUNTER B LONSBERRY/
Primary Examiner, Art Unit 2424

<i>Notice of References Cited</i>	Application/Control No. 15/538,911		Applicant(s)/Patent Under Reexamination HERNANDEZ-MONDRAGON, Edwin A.	
	Examiner HUNTER B LONSBERRY		Art Unit 2424	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-20100192178-A1	07-2010	Candelore; Brant L.	G06K9/325	725/39
*	B	US-20080098426-A1	04-2008	Candelore; Brant L.	H04N5/4403	725/38
	C					
	D					
	E					
	F					
	G					
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	I					
	J					
	K					
	L					
	M					

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					

<i>Search Notes</i> 	Application/Control No. 15/538,911	Applicant(s)/Patent Under Reexamination HERNANDEZ-MONDRAGON, Edwin A.
	Examiner HUNTER B LONSBERRY	Art Unit 2424

CPC - Searched*		
Symbol	Date	Examiner
H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/8	1/22/18	HBL

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
east search history	1/22/18	HBL
updated east	06/08/2018	HBL
Consulted Fernando Alcon, primary class 725/h04n21	06/08/2018	HBL

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H04N21/440218			

/HUNTER B LONSBERRY/ Primary Examiner.Art Unit 2424	
--	--

Issue Classification 	Application/Control No. 15/538,911	Applicant(s)/Patent Under Reexamination HERNANDEZ-MONDRAGON, Edwin A.
	Examiner HUNTER B LONSBERRY	Art Unit 2424

CPC						
Symbol				Type	Version	
H04N	/	21	/	440218	F	2013-01-01
H04N	/	21	/	234309	I	2013-01-01
H04N	/	21	/	84	I	2013-01-01
H04N	/	21	/	8106	I	2013-01-01
H04N	/	21	/	8133	I	2013-01-01
H04N	/	21	/	2387	I	2013-01-01
H04N	/	21	/	47217	I	2013-01-01
H04N	/	21	/	233	I	2013-01-01
H04N	/	21	/	6143	I	2013-01-01
H04N	/	21	/	6118	I	2013-01-01
H04N	/	21	/	8153	I	2013-01-01
H04N	/	21	/	4312	I	2013-01-01
H04N	/	21	/	6405	A	2013-01-01
H04N	/	21	/	64322	A	2013-01-01

CPC Combination Sets					
Symbol		Type	Set	Ranking	Version
/	/				

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 21	
/HUNTER B LONSBERRY/ Primary Examiner, Art Unit 2424 (Primary Examiner) _____ (Date) 08 June 2018		O.G. Print Claim(s) 1	O.G. Print Figure 6

U.S. Patent and Trademark Office

Part of Paper No.: 20180608

Issue Classification 	Application/Control No. 15/538,911	Applicant(s)/Patent Under Reexamination HERNANDEZ-MONDRAGON, Edwin A.
	Examiner HUNTER B LONSBERRY	Art Unit 2424

INTERNATIONAL CLASSIFICATION			
CLAIMED			
H04N		21	4402
NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/HUNTER B LONSBERRY/ Primary Examiner, Art Unit 2424	08 June 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Issue Classification 	Application/Control No. 15/538,911	Applicant(s)/Patent Under Reexamination HERNANDEZ-MONDRAGON, Edwin A.
	Examiner HUNTER B LONSBERRY	Art Unit 2424

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

NONE	Total Claims Allowed:	
(Assistant Examiner)	(Date)	21
/HUNTER B LONSBERRY/ Primary Examiner, Art Unit 2424	08 June 2018	O.G. Print Claim(s)
(Primary Examiner)	(Date)	1
		O.G. Print Figure
		6

Docket No.: 162774.00101
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edwin A. Hernandez-Mondragon

Application No.: 15/538,911

Confirmation No.: 8633

Filed: June 22, 2017

Art Unit: N/A

For: METHOD, SYSTEM, AND APPARATUS FOR
MULTIMEDIA CONTENT DELIVERY TO
CABLE TV AND SATELLITE OPERATORS
Examiner: Not Yet Assigned

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (IDS)

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

Dear Sir:

This Supplemental Information Disclosure Statement is submitted in accordance with 37 C.F.R. 1.97, 1.98, and it is requested that the information set forth in this statement and in the listed documents be considered during the pendency of the above-identified application, and any other application relying on the filing date of the above-identified application or cross-referencing it as a related application.

1. This IDS should be considered, in accordance with 37 C.F.R. 1.97, as it is filed:
(Check one of the boxes A-D)

- ☒ A. within three months of the filing date of the above-identified national application or within three months of the entry into the national stage of the above identified national application
- ☐ B. before the mailing date of a first office action on the merits, or a first office action after filing a request for continued examination.
- ☐ C. after (A) and (B) above, but before final rejection or allowance, and Applicants have made the necessary statement in box "i" below or paid the necessary fee in box "ii" below.

ACTIVE49993506.v1-7/12/17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /H.B.L/

(check one of the boxes “i” and “ii” below:)

- ☐ i. Counsel states that, upon information and belief, each item of information listed herein was (check one of boxes (a) or (b))
- ☐ (a) first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- ☐ (b) not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.
- ☐ ii. Payment in the amount of the fee set forth in 1. 17(p), presently believed to be \$180, is enclosed.
- ☐ D. after (A), (B) and (C) above, but before payment of the issue fee: Applicant petitions under 37 C.F.R. 1.97(d) for the consideration of this IDS. Under 37 CFR 1.17(p) payment in the amount of \$180.00 is enclosed. Counsel certifies that, upon information and belief, each item of information listed herein was

(check one of the boxes “a” and “b” below:)

- ☐ (a) first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- ☐ (b) was not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.

2. In accordance with 37 C.F.R. 1.98, this IDS includes a list (e.g., form PTO/SB/08) of all patents, publications, or other information submitted for consideration by the office, either incorporated into this IDS or as an attachment hereto. A copy of each document listed is attached, except as explained below.

(check boxes A, B and/or C and fill in blanks, if appropriate.)

ACTIVE49993506.v1-7/12/17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /H.B.L./

- ☐ A. Pursuant to the Notice issued by the United States Patent and Trademark Office dated August 5, 2003 waiving the requirements of 37 C.F.R. § 1.98(a)(2)(ii), a copy/copies of the U.S. Patent(s) and/or U.S. Patent Application Publication(s) on PTO/SB/08 is/are not being submitted.
- ☐ B. Document(s) _____ is (are) deemed substantially cumulative to document(s) _____, and, in accordance with 1.98(c), only a copy of each of the latter documents is enclosed.
- ☐ C. Certain documents were previously cited by or submitted to the Office in the following prior applications, which are relied upon under 35 U.S.C. 120:

<<INSERT SERIAL NO. & FILING DATE>>

Applicant identifies these documents by attaching hereto copies of the forms PTO-892, PTO-1449 and/or PTO/SB/08 from the files of the prior application(s) or a fresh PTO/SB/08 listing these documents, and request that they be considered and made of record in accordance with 1.98(d). Per 37 CFR 1.98(d), copies of these documents need not be filed in this application.

- ☐ 3. Cite Nos. _____ are not in the English language. In accordance with 1.98(c), Applicant states:
- ☐ An English translation of each document (or of the pertinent portions thereof), or a copy of each corresponding English-language patent or application, or English-language abstract (or claim) is enclosed.
- ☐ The requirement for a concise explanation of the relevance of any foreign language document is satisfied by the attached search report; citation of the documents cited in the search report shall not be construed as an admission that they are or are considered to be, material to patentability of the subject matter claimed herein (See MPEP §609).
- ☐ A concise explanation of the relevance of document(s) _____ is set forth as follows: [Insert concise explanation of relevance]
- ☐ A concise explanation of the relevance of document(s) _____ can be found on page(s) _____ of the specification.
- ☐ A concise explanation of document(s) _____ can be found on the attached sheet.

ACTIVE49993506.v1-7/12/17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /H.B.L./

- ☐ 4. No explanation of relevance is necessary for documents in the English language (see reply to Comments 67 in the preamble to the final rules; 1135 OG 13 at 20).
- ☐ 5. Other information being provided for the examiner's consideration follows:

6. Related Patents and Patent Applications. The Examiner is hereby advised of the existence of the patents, patent applications, and/or other proceedings before the Patent Office listed below which: (1) share at least some common disclosure with the instant application, (2) serve as the basis of priority for the instant application, and/or (3) otherwise may relate to the instant application or one or more of the other matters listed below. For completeness, the instant application is also included in the list.

It is respectfully requested that the Examiner review each matter listed below and its associated prosecution history (e.g., Office Actions, Responses to Office Actions, Interview Summaries, Notice of Allowances, and so forth) as part of evaluating the instant application. The prosecution history for each matter listed below should be readily available to the Examiner through the Patent Office's internal systems. Since these materials are already easily accessible to the Examiner, a hard copy has not been provided. However, at the Examiner's request, Applicant will provide a hard copy of any matter listed below including its prosecution history (or one or more individual documents from the prosecution history). Applicant believes that this is an efficient and effective way to allow the Examiner to consider the applicability of the matters listed below to the instant application.

The attached form PTO/SB/08b includes a reference to the information listed below concerning related patents and patent applications. Applicant requests that the Examiner initial the attached PTO/SB/08b form next to this reference to indicate that the Examiner has considered this information as part of evaluating the instant application. By initialing the form in this manner, the Examiner expressly acknowledges that he/she has considered each matter listed below, as well as all of the documents included in its prosecution history, as part of examining the instant application.

Application Serial No.	Filing Date	Title of Invention

/HUNTER B LONSBERRY/

06/08/2018

7. In accordance with 37 C.F.R. 1.97(g) and (h), the filing of this IDS should not be construed as a representation that a search has been made or that information cited is, or is considered to be, material to patentability as defined in §1.56 (b), or that any cited document listed or attached is (or constitutes) prior art. Unless other-wise indicated, the date of publication indicated

ACTIVE49993506.v1-7/12/17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /H.B.L./

for an item is taken from the face of the item and Applicant reserves the right to prove that the date of publication is in fact different.

Early and favorable consideration is earnestly solicited.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-1943, under Order No. 162774.00101 from which the undersigned is authorized to draw.

Dated: July 12, 2017

Respectfully submitted,

By: /Carol E. Thorstad-Forsyth/
Carol E. Thorstad-Forsyth
Registration No.: 56,455
FOX ROTHSCHILD LLP
222 Lakeview Avenue
Suite 700
West Palm Beach, Florida 33401
(561) 804-4438
(561) 835-9602 (Fax)
Attorneys/Agents For Applicant

ACTIVE49993506.v1-7/12/17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /H.B.L./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15538911
	Filing Date	2017-06-22
	First Named Inventor	Edwin A. Hernandez-Mondragon
	Art Unit	2424
	Examiner Name	H. B. Lonsberry
	Attorney Docket Number	162774.00101

U.S.PATENTS						Remove
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
	1					

If you wish to add additional U.S. Patent citation information please click the Add button.

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U.S.PATENT APPLICATION PUBLICATIONS						Remove
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
	1	20120204217	A1	2012-08-09	Regis et al.	
	2	20140351871	A1	2014-11-27	Bomfim et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button.

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FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	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
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	2424
Examiner Name	H. B. Lonsberry
Attorney Docket Number	162774.00101

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Justin Pot: "Save Videos From Any Site - Even Netflix - With Applian's Replay Capture Suite", 3 June 2014 (2014-06-03), XP055472253, Retrieved from the Internet: URL:https://www.makeuseof.com/tag/savevideos- from-any-site-even-netflix-with-applians-replay-capture-suite/ [retrieved on 2018-05-03].	
	2	Fawad Mir: "Schedule Auto Song Recording From Multiple Radio Streams With streamWriter", 9 January 2013 (2013-01-09), XP055472533, Retrieved from the Internet: URL:https://www.addictivetips.com/windows-tips/schedule-auto-songrecording- from-multiple-radio-streams-streamwriter/ [retrieved on 2018-05-04].	
	3	Chris Robley, "How to make album art videos for your songs on YouTube, July 16, 2014.	

If you wish to add additional non-patent literature document citation information please click the Add button

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EXAMINER SIGNATURE

Examiner Signature	/HUNTER B LONSBERRY/	Date Considered	06/08/2018
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*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.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	2424
Examiner Name	H. B. Lonsberry
Attorney Docket Number	162774.00101

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Carol E. Thorstad-Forsyth/	Date (YYYY-MM-DD)	2018-05-15
Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Edwin A. Hernandez-Mondragon	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	162774.00102	

U.S.PATENTS						Remove
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
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U.S.PATENT APPLICATION PUBLICATIONS						Remove
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
	1	20020138852	A1	2002-09-26	Reynolds et al.	
	2	20090178003	A1	2009-07-09	Fiedler	
	3	20080040354	A1	2008-02-14	Ray et al.	
	4	20140068690	A1	2014-03-06	Luthra et al.	
	5	20140143437	A1	2014-05-22	Mathur et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Edwin A. Hernandez-Mondragon	
Art Unit	N/A	
Examiner Name	Not Yet Assigned	
Attorney Docket Number	162774.00102	

6	20030115612	A1	2003-06-19	Mao et al.
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If you wish to add additional U.S. Published Application citation information please click the Add button.

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
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button.

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	International Search Report dated April 20, 2016 for PCT/US15/67464	

If you wish to add additional non-patent literature document citation information please click the Add button.

EXAMINER SIGNATURE

Examiner Signature	/HUNTER B LONSBERRY/	Date Considered	06/08/2018
--------------------	----------------------	-----------------	------------

*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.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Edwin A. Hernandez-Mondragon	
Art Unit	N/A	
Examiner Name	Not Yet Assigned	
Attorney Docket Number	162774.00102	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Carol E. Thorstad-Forsyth/	Date (YYYY-MM-DD)	2017-06-22
Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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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 inspections 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15538911
	Filing Date	2017-06-22
	First Named Inventor	Edwin A. Hernandez-Mondragon
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	162774.00101

U.S.PATENTS						Remove
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
	1	8769602		2014-07-01	Del Beccaro et al.	
	2	7020888		2006-03-28	Reynolds et al.	

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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
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FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	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
	1							

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00101

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

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Add

EXAMINER SIGNATURE

Examiner Signature	/HUNTER B LONSBERRY/	Date Considered	01/22/2018
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*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.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00101

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Carol E. Thorstad-Forsyth/	Date (YYYY-MM-DD)	2017-07-11
Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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.
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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.
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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.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	377	h04n21/\$.cpc. and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) and (epg ipg program adj guide)	US-PGPUB; USPAT	OR	OFF	2018/06/08 16:46
L2	25	h04n21/\$.cpc. and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) same ocr and (epg ipg program adj guide)	US-PGPUB; USPAT	OR	OFF	2018/06/08 17:07
L3	0	h04n21/440218.cpc. and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) same ocr and (epg ipg program adj guide)	US-PGPUB; USPAT	OR	OFF	2018/06/08 17:33
L4	0	h04n21/440218.cpc. and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) with (multiple several two three continuous plural\$4) same broadcast\$3	US-PGPUB; USPAT	OR	OFF	2018/06/08 17:34
L5	0	h04n21/440218.cpc. and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) with (multiple several two three continuous plural\$4)	US-PGPUB; USPAT	OR	OFF	2018/06/08 17:34
S1	0	"20020138852".pn. and cloud	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:02
S2	1	"20020138852".pn.	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:02
S3	1	"20020138852".pn. and channels	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:11
S4	0	"20020138852".pn. and address	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:12
S5	1	"20020138852".pn. and package\$1	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:17
S6	1	"20020138852".pn. and package\$1 and video with source\$1	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:19
S7	298	virtual adj machine\$1 with multicast\$4	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:34
S8	1	(vmware virtual adj machine\$1) with multicast\$4 and (headend CATV) and (vmware virtual adj machine) with (failure\$1 error\$1)	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:35
S9	7	(vmware virtual adj machine\$1) with multicast\$4 and (headend CATV) and (failure\$1 error\$1)	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:35
S10	31402	(H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc.	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:38

		H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/84.cpc. H04N21/6405.cpc. H04N21/64322.cpc.)				
S11	7	(H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/84.cpc. H04N21/6405.cpc. H04N21/64322.cpc.) and S7	US- PGPUB; USPAT	OR	OFF	2018/01/22 13:38
S12	8	virtual adj machine\$1 with multicast\$4 same cloud	US- PGPUB; USPAT	OR	OFF	2018/01/22 13:41
S13	0	"20140098815".pn. and (error\$1 fail\$4)	US- PGPUB; USPAT	OR	OFF	2018/01/22 13:44
S14	1	"20080040354" .pn.	US- PGPUB; USPAT	OR	OFF	2018/01/22 13:56
S15	22	(H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/84.cpc. H04N21/6405.cpc. H04N21/64322.cpc.) and (fail\$4 error\$1) with multicast\$3 with monitor\$4	US- PGPUB; USPAT	OR	OFF	2018/01/22 14:05
S16	26	(H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/84.cpc. H04N21/6405.cpc. H04N21/64322.cpc.) and (page\$1 web adj page\$1) with captur\$4 same broadcast	US- PGPUB; USPAT	OR	OFF	2018/06/08 14:21
S17	45	(H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/84.cpc. H04N21/6405.cpc. H04N21/64322.cpc.) and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) same broadcast\$3	US- PGPUB; USPAT	OR	OFF	2018/06/08 14:21
S18	0	h04n21/\$.ccls. and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) same broadcast\$3	US- PGPUB; USPAT	OR	OFF	2018/06/08 14:26
S19	356	(page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) same broadcast\$3	US- PGPUB; USPAT	OR	OFF	2018/06/08 14:27
S20	162	h04n21/\$.cpc. and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) same broadcast\$3	US- PGPUB; USPAT	OR	OFF	2018/06/08 14:27
S21	20	h04n21/\$.cpc. and (page\$1 web adj page\$1) with (screen adj shot\$3 captur\$4) with (multiple several two three continuous	US- PGPUB; USPAT	OR	OFF	2018/06/08 14:27

		plural\$4) same broadcast\$3					
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6/ 8/ 2018 5:34:29 PM

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BIB DATA SHEET

CONFIRMATION NO. 8633

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
15/538,911	06/22/2017	725	2424	162774.00101		
APPLICANTS INVENTORS Edwin A. HERNANDEZ-MONDRAGON, Coral Springs, FL; ** CONTINUING DATA ***** This application is a 371 of PCT/US2015/067464 12/22/2015 which claims benefit of 62/095,504 12/22/2014 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 09/19/2017						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /HUNTER B LONSBERRY/ Acknowledged Examiner's Signature		☐ Met after Allowance hbl Initials	STATE OR COUNTRY FL	SHEETS DRAWINGS 9	TOTAL CLAIMS 23	INDEPENDENT CLAIMS 4
ADDRESS FOX ROTHSCHILD LLP PRINCETON PIKE CORPORATE CENTER 997 LENOX DRIVE BLDG. #3 LAWRENCEVILLE, NJ 08648 UNITED STATES						
TITLE METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS						
FILING FEE RECEIVED 960	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

Docket No.: 162774.00101
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edwin A. Hernandez-Mondragon

Application No.: 15/538,911

Confirmation No.: 8633

Filed: June 22, 2017

Art Unit: 2424

For: METHOD, SYSTEM, AND APPARATUS FOR
MULTIMEDIA CONTENT DELIVERY TO
CABLE TV AND SATELLITE OPERATORS

Examiner: H. B. Lonsberry

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (IDS)

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

Dear Sir:

This Information Disclosure Statement is submitted in accordance with 37 C.F.R. 1.97, 1.98, and it is requested that the information set forth in this statement and in the listed documents be considered during the pendency of the above-identified application, and any other application relying on the filing date of the above-identified application or cross-referencing it as a related application.

1. This IDS should be considered, in accordance with 37 C.F.R. 1.97, as it is filed:
(Check one of the boxes A-D)

- ☐ A. within three months of the filing date of the above-identified national application or within three months of the entry into the national stage of the above identified national application
- ☐ B. before the mailing date of a first office action on the merits, or a first office action after filing a request for continued examination.
- ☒ C. after (A) and (B) above, but before final rejection or allowance, and Applicants have made the necessary statement in box "i" below or paid the necessary fee in box "ii" below.

ACTIVE\56797586.v1-5/15/18

(check one of the boxes “i” and “ii” below:)

☒ i. Counsel states that, upon information and belief, each item of information listed herein was (check one of boxes (a) or (b))

☒ (a) first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or

☐ (b) not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.

☐ ii. Payment in the amount of the fee set forth in 1. 17(p), presently believed to be \$180, is enclosed.

☐ D. after (A), (B) and (C) above, but before payment of the issue fee: Applicant petitions under 37 C.F.R. 1.97(d) for the consideration of this IDS. Under 37 CFR 1.17(p) payment in the amount of \$180.00 is enclosed. Counsel certifies that, upon information and belief, each item of information listed herein was

(check one of the boxes “a” and “b” below:)

☐ (a) first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or

☐ (b) was not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.

2. In accordance with 37 C.F.R. 1.98, this IDS includes a list (e.g., form PTO/SB/08) of all patents, publications, or other information submitted for consideration by the office, either incorporated into this IDS or as an attachment hereto. A copy of each document listed is attached, except as explained below.

(check boxes A, B and/or C and fill in blanks, if appropriate.)

- ☐ A. Pursuant to the Notice issued by the United States Patent and Trademark Office dated August 5, 2003 waiving the requirements of 37 C.F.R. § 1.98(a)(2)(ii), a copy/copies of the U.S. Patent(s) and/or U.S. Patent Application Publication(s) on PTO/SB/08 is/are not being submitted.
- ☐ B. Document(s) _____ is (are) deemed substantially cumulative to document(s) _____, and, in accordance with 1.98(c), only a copy of each of the latter documents is enclosed.
- ☐ C. Certain documents were previously cited by or submitted to the Office in the following prior applications, which are relied upon under 35 U.S.C. 120:

<<INSERT SERIAL NO. & FILING DATE>>

Applicant identifies these documents by attaching hereto copies of the forms PTO-892, PTO-1449 and/or PTO/SB/08 from the files of the prior application(s) or a fresh PTO/SB/08 listing these documents, and request that they be considered and made of record in accordance with 1.98(d). Per 37 CFR 1.98(d), copies of these documents need not be filed in this application.

- ☐ 3. Cite Nos. _____ are not in the English language. In accordance with 1.98(c), Applicant states:
- ☐ An English translation of each document (or of the pertinent portions thereof), or a copy of each corresponding English-language patent or application, or English-language abstract (or claim) is enclosed.
- ☐ The requirement for a concise explanation of the relevance of any foreign language document is satisfied by the attached search report; citation of the documents cited in the search report shall not be construed as an admission that they are or are considered to be, material to patentability of the subject matter claimed herein (See MPEP §609).
- ☐ A concise explanation of the relevance of document(s) _____ is set forth as follows: [Insert concise explanation of relevance]
- ☐ A concise explanation of the relevance of document(s) _____ can be found on page(s) _____ of the specification.
- ☐ A concise explanation of document(s) _____ can be found on the attached sheet.

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- ☐ 4. No explanation of relevance is necessary for documents in the English language (see reply to Comments 67 in the preamble to the final rules; 1135 OG 13 at 20).
- ☐ 5. Other information being provided for the examiner's consideration follows:

6. Related Patents and Patent Applications. The Examiner is hereby advised of the existence of the patents, patent applications, and/or other proceedings before the Patent Office listed below which: (1) share at least some common disclosure with the instant application, (2) serve as the basis of priority for the instant application, and/or (3) otherwise may relate to the instant application or one or more of the other matters listed below. For completeness, the instant application is also included in the list.

It is respectfully requested that the Examiner review each matter listed below and its associated prosecution history (e.g., Office Actions, Responses to Office Actions, Interview Summaries, Notice of Allowances, and so forth) as part of evaluating the instant application. The prosecution history for each matter listed below should be readily available to the Examiner through the Patent Office's internal systems. Since these materials are already easily accessible to the Examiner, a hard copy has not been provided. However, at the Examiner's request, Applicant will provide a hard copy of any matter listed below including its prosecution history (or one or more individual documents from the prosecution history). Applicant believes that this is an efficient and effective way to allow the Examiner to consider the applicability of the matters listed below to the instant application.

The attached form PTO/SB/08b includes a reference to the information listed below concerning related patents and patent applications. Applicant requests that the Examiner initial the attached PTO/SB/08b form next to this reference to indicate that the Examiner has considered this information as part of evaluating the instant application. By initialing the form in this manner, the Examiner expressly acknowledges that he/she has considered each matter listed below, as well as all of the documents included in its prosecution history, as part of examining the instant application.

Application Serial No.	Filing Date	Title of Invention

7. In accordance with 37 C.F.R. 1.97(g) and (h), the filing of this IDS should not be construed as a representation that a search has been made or that information cited is, or is considered to be, material to patentability as defined in §1.56 (b), or that any cited document listed or attached is (or constitutes) prior art. Unless other-wise indicated, the date of publication indicated

ACTIVE56797586.v1-5/15/18

for an item is taken from the face of the item and Applicant reserves the right to prove that the date of publication is in fact different.

Early and favorable consideration is earnestly solicited.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-1943, under Order No. 162774.00101 from which the undersigned is authorized to draw.

Dated: May 15, 2018

Respectfully submitted,

By: /Carol E. Thorstad-Forsyth/
Carol E. Thorstad-Forsyth
Registration No.: 56,455
FOX ROTHSCHILD LLP
777 South Flagler Drive
Suite 1700 West Tower
West Palm Beach, Florida 33401
(561) 804-4438
(561) 835-9602 (Fax)
Attorneys/Agents For Applicant

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15538911
	Filing Date	2017-06-22
	First Named Inventor	Edwin A. Hernandez-Mondragon
	Art Unit	2424
	Examiner Name	H. B. Lonsberry
	Attorney Docket Number	162774.00101

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	2424
Examiner Name	H. B. Lonsberry
Attorney Docket Number	162774.00101

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Justin Pot: "Save Videos From Any Site - Even Netflix - With Applian's Replay Capture Suite", 3 June 2014 (2014-06-03), XP055472253, Retrieved from the Internet: URL:https://www.makeuseof.com/tag/savevideos- from-any-site-even-netflix-with-applians-replay-capture-suite/ [retrieved on 2018-05-03].	
	2	Fawad Mir: "Schedule Auto Song Recording From Multiple Radio Streams With streamWriter", 9 January 2013 (2013-01-09), XP055472533, Retrieved from the Internet: URL:https://www.addictivetips.com/windows-tips/schedule-auto-songrecording- from-multiple-radio-streams-streamwriter/ [retrieved on 2018-05-04].	
	3	Chris Robley, "How to make album art videos for your songs on YouTube, July 16, 2014.	

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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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.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	2424
Examiner Name	H. B. Lonsberry
Attorney Docket Number	162774.00101

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Carol E. Thorstad-Forsyth/	Date (YYYY-MM-DD)	2018-05-15
Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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EFS ID:	32631133
Application Number:	15538911
International Application Number:	
Confirmation Number:	8633
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
First Named Inventor/Applicant Name:	Edwin A. HERNANDEZ-MONDRAGON
Customer Number:	29880
Filer:	Carol E. Thorstad Forsyth/Shannon Vieau
Filer Authorized By:	Carol E. Thorstad Forsyth
Attorney Docket Number:	162774.00101
Receipt Date:	15-MAY-2018
Filing Date:	22-JUN-2017
Time Stamp:	16:26:16
Application Type:	U.S. National Stage under 35 USC 371

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Docket No.: 162774.00102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edwin Hernandez-Mondragon

Application No.: 15/538,911

Confirmation No.: 8633

Filed: June 22, 2017

Art Unit: 2424

For: METHOD, SYSTEM, AND APPARATUS FOR
MULTIMEDIA CONTENT DELIVERY TO
CABLE TV AND SATELLITE OPERATORS

Examiner: Hunter B. Lonsberry

AMENDMENT

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

Dear Sir:

INTRODUCTORY COMMENTS

In response to the non-final Office action dated January 26, 2018, please enter the following claims amendments and remarks into the file of the above-identified U.S. patent application.

Amendments to the Claims are reflected in the list of the claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

ACTIVE\54109896.v1-3/12/18

AMENDMENTS TO THE CLAIMS

Listing of Claims

1. (Currently Amended) A computer-implemented method, comprising:
receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items of different types;
obtaining content corresponding to the plurality of multimedia items from at least one ~~source website~~ offering the content in at least one first format;
rendering a web page by a browser using the content;
generating a temporal sequence of each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is screen captures of the rendered web page, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time ~~is compatible with the at least one content provider~~;
assembling the at least one media stream using the temporal sequence of screen captures ~~each of the plurality of multimedia items generated~~; and
providing the at least one media stream to the content provider for broadcast on the broadcast media channel.
2. (Original) The method of claim 1, wherein the obtaining comprises: retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item.
3. (Original) The method of claim 2, wherein the generating comprises: combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items.

4. (Currently Amended) The method of claim 2, wherein the retrieving of the plurality of screen captures comprises obtaining the plurality of screen captures from a playback of a video on the at least one ~~webpage~~website.

5. (Original) The method of claim 4, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of a song title, an artist, and a music genre.

6. (Currently Amended) The method of claim 1, further comprising: identifying the at least one ~~webpage~~website based on a channel identifier associated with the broadcast media channel.

7. (Original) The method of claim 1, further comprising: querying the content provider to determine the second format, wherein the second format corresponds to a Moving Picture Experts Group (MPEG) format.

8. (Currently Amended) The method of claim 3, further comprising:
detecting a change at the at least one ~~webpage~~website corresponding to at least one of the plurality of multimedia items;
in response to detecting the change, retrieving a new plurality of -screen captures from the at least one ~~webpage~~website for the at least one of the plurality of multimedia items; and
reassembling the at least one of the plurality of multimedia items using the new plurality of screen captures to yield an updated multimedia item.

9. (Original) The method of claim 1, wherein the content provider is a cable television operator or a satellite television operator.

10. (Original) The method of claim 1, wherein providing the at least one media stream to the content provider comprises streaming the at least one media stream to an MPEG multiplexer associated with the content provider.

11. (Original) The method of claim 1, further comprising: provisioning, on at least one server, at least one virtual machine for performing the receiving, obtaining, generating, assembling, and providing.

12. (Currently Amended) A system comprising:
at least one processor;
a computer-readable storage medium having stored therein instructions which, when executed by the processor, cause the at least one processor to perform operations comprising:
receive, from a content provider, a request for at least one multimedia stream~~content~~
for playback on a broadcast media channel, the at least one media stream including a plurality of multimedia items of different types;
retrieve, from a cloud based service, ~~offering the multimedia content~~ corresponding to the plurality of multimedia items, the multimedia content in a first format;
render a web page by a browser using the multimedia content;
generate a temporal sequence of that is not compatible with a required format
~~associated with the content provider, a plurality of screen captures of the rendered web page,~~
where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time~~corresponding to a video component of the multimedia content and at least one audio file corresponding to an audio component of the multimedia content~~;
merge the temporal sequence~~plurality of screen captures~~ with the at least one audio file to create the multimedia stream~~content in the required format~~; and
send the multimedia stream~~content~~ to the content provider.

13. (Currently Amended) The system of claim 12, further comprising: retrieve a video from the cloud based service, wherein the ~~plurality of~~ screen captures correspond to a plurality of static images obtained from the video.

14. (Original) The system of claim 12, further comprising: select the multimedia content from the cloud based service based on a music genre associated with the broadcast media channel.

15. (Currently Amended) The system of claim 12, wherein the request ~~for the multimedia content~~ comprises a request for a plurality of multimedia streams for playback on a plurality of broadcast media channels.

16. (Currently Amended) The system of claim 12, wherein the ~~multimedia stream~~content is sent to a broadcast internet protocol (IP) address associated with the content provider.

17. (Currently Amended) A non-transitory computer-readable storage medium having stored therein instructions which, when executed by a processor, cause the processor to perform operations comprising:

receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items of different types;

obtaining content corresponding to the plurality of multimedia items from at least one ~~source~~website offering the content in at least one first format;

rendering a web page by a browser using the content;

generating a sequence of screen captures of the rendered web page, where each screen capture defines all of the plurality of multimedia items in a second format based on the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time~~obtained from the at least one website, wherein the second format is compatible with the at least one content provider;~~

assembling the at least one media stream using ~~each of the~~ sequence of screen captures~~plurality of multimedia items generated~~; and
providing the at least one media stream to the content provider for broadcast on the broadcast media channel.

18. (Currently Amended) The non-transitory computer-readable storage medium of claim 17, wherein the obtaining comprises retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item; and
wherein the ~~assembling~~generating comprises combining the plurality of screen captures and the at least one audio file ~~to create each of the plurality of multimedia items~~.

19. (Original) The non-transitory computer-readable storage medium of claim 17, wherein the at least one media stream corresponds to at least one of an HTTP live stream (HLS), an HTTP playlist, and a Real-time Streaming Transport (RTSP) stream.

20. (Original) The non-transitory computer-readable storage medium of claim 17, storing additional instructions which, when executed by the processor, result in operations comprising:
detect a network failure affecting connectivity with the at least one website; and
in response, provide a previously recorded media stream to the content provider.

21. (Original) The non-transitory computer-readable storage medium of claim 17, wherein assembling the at least one media stream comprises inserting at least one MPEG packet including metadata corresponding to the multimedia item.

22. – 23. (Canceled)

REMARKS

These remarks are in response to the non-final Office action mailed January 26, 2018, (“Office Action”). This reply is timely filed. At the time of the Office Action, claims 1-23 were pending in the application.

I. Status of the Claims

Claims 1-4, 6-10, 12, 13, 15, 17, 18 and 21 have been rejected under 35 U.S.C. §102. Claims 5, 14, 11, 16, 19, 20, 23 and 24 have been rejected under 35 U.S.C. §103. The rejections are set forth in detail below.

Claims 1, 4, 6, 8, 9, 11, 13 and 15-18 have been amended. No new subject matter has been added by the claim amendments. Support for the amendments made to the independent claims can be found at least in FIGS. 5-7 and paragraphs [0030], [0031], [0038]-[0043], [0047], [0048] of the present application. Claims 22 and 23 have been canceled without prejudice or disclaimer to the subject matter therein.

II. Claims Rejections Under 35 U.S.C. §102

In the Office Action, claims 1-4, 6-10, 12, 13, 15, 17, 18 and 21 were rejected under 35 U.S.C. §102 as being anticipated by U.S. Patent Publication No. 2002/0138852 to Reynolds et al. (“Reynolds”). Applicant respectfully traverses the Examiner’s rejection.

Reynolds generally discloses systems and methods for generating and transmitting a broadcast stream. The methods involve: obtaining a set of disparate media content elements (e.g., audio, video and metadata) from respective sources **102, 104, 106¹**; generating a plurality of disparate data streams by converting a format of each media content element to a transmission format²; packaging together the disparate data streams into an omnimedia package³; and transmitting the omnimedia package in a broadcast stream to a set-top box⁴.

¹ See paragraph [0022] of Reynolds.

² See paragraph [0049] of Reynolds.

³ See Abstract of Reynolds.

⁴ See paragraph [0007] of Reynolds.

Although Reynolds discloses systems and methods in which an omnimedia package is generated and transmitted to a set-top box, it fails to teach the present solution recited in amended independent claim 1. More particularly, Reynolds fails to disclose and/or suggest generating a temporal sequence of screen captures of a web page rendered by a browser using content corresponding to a plurality of multimedia items of a media stream for playback, where (a) each screen capture defines all the content of the web page at a given time and (b) at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time.

Therefore, independent claim 1 is not anticipated by Reynolds. As such, claim 1 is believed to be in condition for allowance. Independent claims 12 and 17 are similar to claim 1, albeit different in some ways. Accordingly, claims 12 and 17 are also believed to be allowable at least for the same reasons as claim 1 discussed herein. Each of the dependent claims is allowable at least by virtue of its dependence on an allowable base claim.

III. Claim Rejections Under 35 U.S.C. §103

In the Office Action, claims 5 and 14 were rejected under 35 U.S.C. §103 as being unpatentable over Reynolds in view of U.S. Patent Publication No. 2009/0178003 to Fiedler (“Fiedler”). Claim 11 was rejected under 35 U.S.C. §103 as being unpatentable over Reynolds in view of U.S. Patent Publication No. 2008/0040354 to Ray et al. (“Ray”). Claim 18 was rejected under 35 U.S.C. §103 as being unpatentable over Reynolds in view of U.S. Patent Publication No. 2014/0068690 to Luthra et al. (“Luthra”). Claim 20 was rejected under 35 U.S.C. §103 as being unpatentable over Reynolds in view of U.S. Patent Publication No. 2014/0143437 to Mathur et al. (“Mathur”). Claims 23 and 24 were rejected under 35 U.S.C. §103 as being unpatentable over Ray in view of U.S. Patent Publication No. 2014/0098815 to Mishra et al. (“Mishra”) and U.S. Patent Publication No. 2015/0319004 to Kwan et al. (“Kwan”). Applicant respectively traverses the Examiner’s rejections.

As noted above, Reynolds fails to teach each and every limitation of claim 1. More particularly, Reynolds fails to disclose and/or suggest generating a temporal sequence of screen captures of a website rendered using content corresponding to a plurality of multimedia items of a

media stream for playback, where (a) each screen capture defines all the content of the website at a given time and (b) at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time. None of the cited references cures this deficiency of Reynolds. There is no motivation in the cited references for modifying the inventions thereof so as to obtain the present solution.

This is an important distinction between the claimed solution and the cited references. In this regard, it should be understood that the present solution provides a more efficient and less computationally intensive process for providing content to set-top boxes. Also, the claimed solution allows for simplification of set-top boxes. This is not the case in any of the cited references. For example, in Reynolds, a special set-top box is required for decoding the broadcast stream and rendering the media stream for playback.

In view of the forgoing, amended independent claim 1 is non-obvious in view of the cited references and the suggested combinations thereof. As such, amended independent claim 1 is believed to be in condition for allowance. Amended independent claim 12, 17 and 22 are the same as amended independent claim 1, albeit different in some ways. Accordingly, amended independent claims 12, 17 and 22 are also believed to be in condition allowance. Each of the dependent claims is allowable at least by virtue of its dependence on an allowable base claim.

IV. Conclusion

Applicant has made every effort to present claims that distinguish over the prior art, and believes that all claims are in condition for allowance. Nevertheless, Applicant invites the Examiner to call the undersigned if (s)he believes that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the forgoing remarks, Applicant respectfully requests reconsideration and prompt allowance of the pending claims. Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-1943 under matter no. 162774.00101 from which the undersigned is authorized to draw.

Application No. 15/538,911
Amendment dated March 12, 2018
Reply to Non-Final Office Action mailed January 26, 2018

Docket No.: 162774.00102

Dated: March 12, 2018

Respectfully submitted,

Electronic Signature: /Carol E. Thorstad-Forsyth/
Carol E. Thorstad-Forsyth

Registration No.: 56,455
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997 Lenox Drive, Building 3
Lawrenceville, New Jersey 08648-2311
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Attorneys/Agents For Applicant

Electronic Acknowledgement Receipt	
EFS ID:	32022414
Application Number:	15538911
International Application Number:	
Confirmation Number:	8633
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
First Named Inventor/Applicant Name:	Edwin A. HERNANDEZ-MONDRAGON
Customer Number:	29880
Filer:	Carol E. Thorstad Forsyth/KAREN TARAGOWSKI
Filer Authorized By:	Carol E. Thorstad Forsyth
Attorney Docket Number:	162774.00102
Receipt Date:	12-MAR-2018
Filing Date:	22-JUN-2017
Time Stamp:	14:08:50
Application Type:	U.S. National Stage under 35 USC 371

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File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	Amendment.pdf	41352	no	10
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ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO													
APPLICATION AS FILED - PART I													
		(Column 1)		(Column 2)									
FOR		NUMBER FILED		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), (l), 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 \$40 =							
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *				x \$210 =							
☐ 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													
		(Column 1)		(Column 2)		(Column 3)							
AMENDMENT	03/12/2018		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))		* 21		Minus ** 23		= 0		x \$50 =		0		
	Independent (37 CFR 1.16(h))		* 3		Minus *** 4		= 0		x \$230 =		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			CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))		*		Minus **		=		x \$0 =				
	Independent (37 CFR 1.16(h))		*		Minus ***		=		x \$0 =				
	☐ 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.										LIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".										Tara A Washington			
*** 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.													

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.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/538,911	06/22/2017	Edwin A. HERNANDEZ-MONDRAGON	162774.00102	8633

29880	7590	01/26/2018
FOX ROTHSCHILD LLP PRINCETON PIKE CORPORATE CENTER 997 LENOX DRIVE BLDG. #3 LAWRENCEVILLE, NJ 08648		

EXAMINER	
LONSBERRY, HUNTER B	

ART UNIT	PAPER NUMBER
2424	

NOTIFICATION DATE	DELIVERY MODE
01/26/2018	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):

ipdocket@foxrothschild.com

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

Claim(s) 1-4, 6-10, 12-13, 15, 17, 18 and 21 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by US 2002/0138852 A1 to Reynolds et al. (of record).

As per claim 1, Reynolds discloses a computer-implemented method comprising: receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items (a content provider employs a framework definition to specify (request) and deliver a package of related content streams (multimedia items), providing information necessary to build, format, transmit and display the cable broadcast content (for playback on a broadcast media channel); abstract; paragraphs [0013], [0020]); obtaining content corresponding to the plurality of multimedia items from at least one website offering the content in at least one first format (interactive HTML (first format) content is associated with various video streams (plurality of multimedia items), where the HTML content and streams are provided via a corresponding URL;

paragraphs [0022]-[0024], [0057]); generating each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is compatible with the at least one content provider (video, audio assets and HTML metadata obtained via URL's (based on the content obtained from the at least one website) are packaged into a format (second format) that is compatible with the delivery system (provider) to prepare the video for compliant transport via an MPEG transport format; paragraphs [0048]-[0050], [0057]); assembling the at least one media stream using each of the plurality of multimedia items generated (video, audio assets and HTML metadata obtained via URL's are packaged (assembling) into a format (using each of the plurality of multimedia items generated) that is compatible with the delivery system to prepare the video for compliant transport via an MPEG transport format; paragraphs [0048]-[0050], [0057]); and providing the at least one media stream to the content provider for broadcast on the broadcast media channel (the framework controller formats and organize media components into streams that are provided to the delivery system to be delivered by the delivery system, using a transmission apparatus such as employed by cable and satellite broadcast systems; paragraphs [0045], [0053], [0054]).

As per claim 2, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, wherein the obtaining comprises:

retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen

captures corresponding to a video component of the multimedia item (metadata may comprise graphics data, sound data (audio file), HTML data such as interactive HTML pages (screen captures) associated with matches being broadcasted via video feed and video data, the metadata being time synchronized to content such as an audio track or be content related; paragraphs [0022]-[0024], [0028], [0048]).

As per claim 3, Reynolds discloses the method of claim 2. Additionally, Reynolds discloses, wherein the generating comprises: combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items (multiple media and metadata streams having content such as audio data and interactive HTML pages are combined into a framework for distribution of the content (multimedia items) to a viewer; paragraphs [0010], [0022]-[0024], [0048]).

As per claim 4, Reynolds discloses the method of claim 2. Additionally, Reynolds discloses, wherein the retrieving of the plurality of screen captures comprises obtaining the plurality of screen captures from a playback of a video on the at least one website (interactive HTML pages (screen captures), having associated URL's, can provide detailed commentary for an earlier match shown via video feed (obtaining the plurality of screen captures from a playback of a video); paragraphs [0010], [0022]-[0024], [0057]).

As per claim 6, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, further comprising: identifying the at least one website based on a channel

identifier associated with the broadcast media channel (interactive HTML pages, having associated URL's (website based on a channel identifier), can provide detailed commentary for a match shown via broadcast video feed; paragraphs [0010], [0022]-[0024], [0057]).

As per claim 7, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, further comprising:

querying the content provider to determine the second format (a mechanism permits a content provider to define a framework (querying the content provider) for delivering a package of related content, using a framework definition that provides information to format (second format) disparate content streams for compatibility with the provider; abstract; paragraph [0049]),

wherein the second format corresponds to a Moving Picture Experts Group (MPEG) format (video and audio assets are packaged into a format that is compatible with the delivery system, which includes preparing the video for compliant transport via an MPEG transport format; paragraph [0049]).

As per claim 8, Reynolds discloses the method of claim 3. Additionally, Reynolds discloses, further comprising:

detecting a change at the at least one website corresponding to at least one of the plurality of multimedia items (interactive HTML pages (screen captures), having associated URL's (website), shows match statistics (multimedia item) for a

match in progress and is closely synchronized (detecting change) with a broadcast video feed (multimedia items); paragraphs [0010], [0022]-[0024], [0057]);

in response to detecting the change, retrieving a new plurality of screen captures from the at least one website for the at least one of the plurality of multimedia items (interactive HTML pages (screen captures), having associated URL's (website), shows match statistics (multimedia item) for a match in progress and is closely synchronized (in response to detecting the change, retrieving a new plurality of screen captures) with a broadcast video feed (multimedia items); paragraphs [0010], [0022]-[0024], [0057]);

and reassembling the at least one of the plurality of multimedia items using the new plurality of screen captures to yield an updated multimedia item (interactive HTML pages (screen captures), having associated URL's (website), shows match statistics (multimedia item) for a match in progress and is closely synchronized using metadata packaging (reassembling the at least one of the plurality of multimedia items using the new plurality of screen captures to yield an updated multimedia item) with a broadcast video feed (multimedia items); paragraphs [0010], [0022]-[0024], [0050], [0057]).

As per claim 9, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, wherein the content provider is a cable television operator or a satellite television operator (the delivery system (content provider) may comprise a headend

system and transmission apparatus such as employed by cable, satellite, terrestrial, and other broadcast systems; paragraph [0045]).

As per claim 10, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, wherein providing the at least one media stream to the content provider comprises streaming the at least one media stream to an MPEG multiplexer associated with the content provider (a framework controller may utilize the framework definition to access media content, to process and format the media content for delivery system (provider) compatible MPEG transport, and to control packaging and multiplexing of the content for broadcast; paragraphs [0009], [0049], [0050]).

Claim 12 substantially corresponds to the subject matter of claims 1 and 3, furthermore Reynolds discloses a cloud system as the content is initially stored remotely, processed remotely 90030) and streamed to an end user (0020-0021).

Claim 13 substantially corresponds to the subject matter of claim 2.

Regarding claim 15, Reynolds discloses at 0022 that there are a number of video sources 102, that correspond to multiple broadcast channels, alternate camera sources, VOD programming and the like which are packaged together.

As per claim 17, Reynolds discloses a non-transitory computer-readable storage medium having stored therein instructions which, when executed by a processor, cause the processor to perform operations comprising:

receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items (a content provider employs a framework definition to specify (request) and deliver a package of related content streams (multimedia items), providing information necessary to build, format, transmit and display the cable broadcasted content (for playback on a broadcast media channel); abstract; paragraphs [0013], [0020]);

obtaining content corresponding to the plurality of multimedia items from at least one website offering the content in at least one first format (interactive HTML (first format) content is associated with various video streams (plurality of multimedia items), where the HTML content and streams are provided via a corresponding URL; paragraphs [0022]-[0024], [0057]);

generating each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is compatible with the at least one content provider (video, audio assets and HTML metadata obtained via URL's (based on the content obtained from the at least one website) are packaged into a format (second format) that is compatible with the delivery system (provider) to prepare the video for compliant transport via an MPEG transport format; paragraphs [0048]-[0050], [0057]);

assembling the at least one media stream using each of the plurality of multimedia items generated (video, audio assets and HTML metadata obtained via URL's are packaged (assembling) into a format (using each of the plurality of multimedia items generated) that is compatible with the delivery system to prepare the video for compliant transport via an MPEG transport format; paragraphs [0048]-[0050], [0057]); and providing the at least one media stream to the content provider for broadcast on the broadcast media channel (the framework controller formats and organize media components into streams that are provided to the delivery system to be delivered by the delivery system, using a transmission apparatus such as employed by cable and satellite broadcast systems; paragraphs [0045], [0053], [0054]).

As per claim 18, Reynolds discloses the non-transitory computer-readable storage medium of claim 17. Additionally, Reynolds discloses:

wherein the obtaining comprises retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item (metadata may comprise graphics data, sound data (audio file), HTML data such as interactive HTML pages (screen captures) associated with matches being broadcasted via video feed and video data, the metadata being time synchronized to content such as an audio track or be content related; paragraphs [0022]-[0024], [0028], [0048]);

and wherein the generating comprises combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items (multiple media and metadata streams having content such as audio data and interactive HTML pages are combined into a framework for distribution of the content (multimedia items) to a viewer; paragraphs [0010], [0022]-[0024], [0048]).

As per claim 21, Reynolds discloses the non-transitory computer-readable storage medium of claim 17. Additionally, Reynolds discloses, wherein assembling the at least one media stream comprises inserting at least one MPEG packet including metadata corresponding to the multimedia item (metadata packaging may comprise packetization, serialization, and synchronization to video and/or audio streams, where the metadata is prepared for transport across any compliant transport mechanism such as MPEG; paragraph [0050]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 14 are rejected under 35 U.S.C. 103 as being unpatentable over US 2002/0138852 A1 to Reynolds et al in view of US 2009/0178003 A1 to Fiedler (of record).

As per claim 5 and 14, Reynolds discloses the method of claim 4. Reynolds does not disclose, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of a song title, an artist, and a music genre.

Fiedler discloses, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of a song title, an artist, and a music genre (playlists (screen captures comprises metadata) are assembled and broadcasted via webcasting of such presented content by broadcasters; abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Reynolds to provide metadata corresponding to a song title, an artist, and/or a music genre, as taught by Fiedler, in order to provide content formatting and assembly capabilities for distributing musical content.

Claim 11 is rejected under 35 U.S.C. 103 as being unpatentable over US 2002/0138852 A1 to Reynolds et al in view of US 2008/0040354 A1 to Ray et al. (of record)

As per claim 11, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, further comprising: providing at least one server for performing the receiving, obtaining, generating, assembling, and providing (a content provider, using the framework controller (server), employs a framework definition to specify (providing) and deliver a package (assembling) of related content streams (receiving), providing

information (obtaining) necessary to build, format (generating), transmit and display the cable broadcasted content; abstract; paragraphs [0013], [0020], [0045], [0053]).

Reynolds does not disclose, further comprising, provisioning, on at the least one server, at least one virtual machine.

Ray discloses, further comprising, provisioning, on at the least one server, at least one virtual machine (a content provider server suitable for use in a content delivery system comprises processing logic that further comprises a virtual machine; paragraph [0099]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Reynolds to provide at least one virtual machine on the least one server, as taught by Ray, in order to provide content formatting and assembly capabilities in a virtualized environment.

Claim 16 is rejected under 35 U.S.C. 103 as being unpatentable over US 2002/0138852 A1 to Reynolds et al.

Regarding claim 16, Reynolds discloses that the data is distributed via the internet (0003) and the use of the Internet for a return path from a receiver to the headend (0055), but does not explicitly disclose that the multimedia data is sent to a broadcast internet protocol address associated with the content provider.

The Examiner takes official notice that the use of IP multicasting broadcast addresses associated with a content provider was well known in the art at the time of

invention. IP multicasting allows a number of users to connect to a broadcast of content via a single IP address, and takes up less bandwidth than multiple unicast addresses as a multicast router can send out the data to the end users at a point closer to consumption, freeing up bandwidth for other content to be delivered.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Renolds to utilize an IP multicasting address associated with the content provider for the bandwidth savings doing so provides.

Claim 19 is rejected under 35 U.S.C. 103 as being unpatentable over US 2002/0138852 A1 to Reynolds et al in view of US 2014/0068690 A1 to LUTHRA et al.

As per claim 19, Reynolds discloses the non-transitory computer-readable storage medium of claim 17.

Reynolds does not disclose, wherein the at least one media stream corresponds to at least one of an HTTP live stream (HLS), an HTTP playlist, and a Real-time Streaming Transport (RTSP) stream.

However, Luthra discloses, wherein the at least one media stream corresponds to at least one of an HTTP live stream (HLS), an HTTP playlist, and a Real-time Streaming Transport (RTSP) stream (the client converter can be implemented as an interface for HTTP Live Streaming client devices that receive HLS compliant bit streams; paragraph [0013]). It would have been obvious to one of ordinary skill in the art

at the time of the invention to modify the storage medium of Reynolds to provide a media stream corresponding to at least one of an HTTP live stream, an HTTP playlist, and a Real-time Streaming Transport stream, as taught by Luthra, in order to provide content formatting and stream assembly capabilities to support various types of content format and transport protocols.

Claim 20 is rejected under 35 U.S.C. 103 as being unpatentable over US 2002/0138852 A1 to Reynolds et al in view of US 2014/0143437 A1 to Mathur et al (of record).

As per claim 20, Reynolds discloses the non-transitory computer-readable storage medium of claim 17.

Reynolds does not disclose, storing additional instructions which, when executed by the processor, result in operations comprising: detect a network failure affecting connectivity with the at least one website; and in response, provide a previously recorded media stream to the content provider.

Mathur discloses, storing additional instructions which, when executed by the processor, result in operations comprising: detect a network failure affecting connectivity with the at least one website (the stream conversion application (content provider) can retrieve at least some of the content segments from a failover source for the live stream, where a live stream can be provided from more than one server system to allow the live stream to be continuously published or otherwise provided using stored VoD streaming

content in the event that one of the server systems experiences a failure, such as a loss of network connectivity for a web session; paragraphs [0030], [0043], [0065]); and in response, provide a previously recorded media stream to the content provider (the stream conversion application (content provider) can retrieve at least some of the content segments from a failover source for the live stream, where a live stream can be provided from more than one server system to allow the live stream to be continuously published or otherwise provided using stored VoD streaming content in the event that one of the server systems experiences a failure, such as a loss of network connectivity for a web session; paragraphs [0030], [0043], [0065]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the storage medium of Reynolds to provide streaming of pre-recorded content as a result of network failure detection that affects connectivity with a website, as taught by Malthur, in order to provide backup content stream capabilities.

Claims 23-24 are rejected under 35 U.S.C. 103 as being unpatentable over US 2008/0040354 A1 to Ray et al. (of record) in view of US 2014/0098815 A1 to Mishra et al and US 2015/0319004 A1 to Kwan et al.

Regarding claim 23, Ray discloses, provisioning, on at the least one server, at least one virtual machine (a content provider server suitable for use in a content delivery system comprises processing logic that further comprises a virtual machine; paragraph

[0099]), the content is received from a provider at the content distributor in the cloud.
(figure 1).

Ray however fails to disclose

Provisioning, on the at least one server, a second virtual machine communicatively coupled to the first virtual machine and to a cable operator and provisioning, on the at least one server, a third virtual machine communicatively coupled to the first virtual machine, the second virtual machine, and the cable operator, wherein the third virtual machine is configured to monitor an output from the second virtual machine to determine if a failure condition has occurred.

Mishra discloses a server with a number of virtual machines, which includes a VM to implement an IP multicasting function (0062-0065 management functionality via MCC, 0006, figure 12/13).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify Ray to utilize the multicast controller functionality of Mishra for the bandwidth savings multicasting provides compared to sending out unicast streams to each end device.

The combination of Ray and Mishra discloses a number of VMs but fails to disclose that the third virtual machine is configured to monitor an output from the second virtual machine to determine if a failure condition has occurred.

Kwan discloses devices that monitors multicast streams to diagnose multicast delivery performance and failures, including lost packets and failed packet retransmission attempts (0097 and 0101).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination of Ray and Mishra's teachings of multiple VMs and IP multicasting to utilize Kwan's IP multicast monitoring features, for the advantages of finding multicasts that are having performance difficulties and send warnings based on negative trends (abstract).

Regarding claim 23, the limitations of:

configuring at least one digital certificate to provide access to the multimedia content; and configuring at least one internet protocol (IP) address corresponding to a multicast address for the cable operator, are inherently taught by the combination as Ray discloses a content provider (which corresponds to the cable provider) which provides the content, and Mishra discloses IP multicasting which is needed to setup an IP multicast group.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hunter B. Lonsberry whose telephone number is (571)272-7298. The examiner can normally be reached on Monday-Friday during normal business hours.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on (571)272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Hunter B Lonsberry
Primary Examiner
Art Unit 2424

/Hunter B Lonsberry/
Primary Examiner, Art Unit 2424

Notice of References Cited	Application/Control No. 15/538,911	Applicant(s)/Patent Under Reexamination HERNANDEZ-MONDRAGON, EDWI	
	Examiner Hunter B. Lonsberry	Art Unit 2424	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-2015/0319004 A1	11-2015	KWAN; DICK	H04L12/1868	370/252
*	B	US-2014/0098815 A1	04-2014	Mishra; Ramesh	H04L12/185	370/390
	C	US-				
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15538911
	Filing Date	2017-06-22
	First Named Inventor	Edwin A. Hernandez-Mondragon
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	162774.00101

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	1	8769602		2014-07-01	Del Beccaro et al.	
	2	7020888		2006-03-28	Reynolds et al.	

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(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00101

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00101

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Carol E. Thorstad-Forsyth/	Date (YYYY-MM-DD)	2017-07-11
Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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.

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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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15538911
	Filing Date	2017-06-22
	First Named Inventor	Edwin A. Hernandez-Mondragon
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	162774.00101

U.S.PATENTS						Remove
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
	1	6886178		2005-04-26	Mao et al.	
	2	7320025		2008-01-15	Steinberg et al.	

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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
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00101

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
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EXAMINER SIGNATURE

Examiner Signature	/HUNTER B LONSBERRY/	Date Considered	01/22/2018
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*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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15538911
	Filing Date		2017-06-22
	First Named Inventor	Edwin A. Hernandez-Mondragon	
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Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455								

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BIB DATA SHEET

CONFIRMATION NO. 8633

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
15/538,911	06/22/2017	725	2424	162774.00102		
APPLICANTS INVENTORS Edwin A. HERNANDEZ-MONDRAGON, Coral Springs, FL; ** CONTINUING DATA ***** This application is a 371 of PCT/US2015/067464 12/22/2015 which claims benefit of 62/095,504 12/22/2014 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 09/19/2017						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /HUNTER B LONSBERRY/ Acknowledged Examiner's Signature		☐ Met after Allowance hbl Initials	STATE OR COUNTRY FL	SHEETS DRAWINGS 9	TOTAL CLAIMS 23	INDEPENDENT CLAIMS 4
ADDRESS FOX ROTHSCHILD LLP PRINCETON PIKE CORPORATE CENTER 997 LENOX DRIVE BLDG. #3 LAWRENCEVILLE, NJ 08648 UNITED STATES						
TITLE METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS						
FILING FEE RECEIVED 960	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit			

<i>Index of Claims</i> 	Application/Control No. 15538911	Applicant(s)/Patent Under Reexamination HERNANDEZ-MONDRAGON, EDWIN A.
	Examiner HUNTER B LONSBERRY	Art Unit 2424

✓	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	01/22/2018																																					
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Search Notes 	Application/Control No. 15538911	Applicant(s)/Patent Under Reexamination HERNANDEZ-MONDRAGON, EDWIN A.
	Examiner HUNTER B LONSBERRY	Art Unit 2424

CPC- SEARCHED		
Symbol	Date	Examiner
H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/8	1/22/18	HBL

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
east search history	1/22/18	HBL

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/HUNTER B LONSBERRY/ Primary Examiner.Art Unit 2424
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	"20020138852".pn. and cloud	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:02
L2	1	"20020138852".pn.	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:02
L3	1	"20020138852".pn. and channels	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:11
L4	0	"20020138852".pn. and address	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:12
L5	1	"20020138852".pn. and package\$1	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:17
L6	1	"20020138852".pn. and package\$1 and video with source\$1	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:19
L7	298	virtual adj machine\$1 with multicast\$4	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:34
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L9	7	(vmware virtual adj machine\$1) with multicast\$4 and (headend CATV) and (failure\$1 error\$1)	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:35
L10	31402	(H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/84.cpc. H04N21/6405.cpc. H04N21/64322.cpc.)	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:38
L11	7	(H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/84.cpc. H04N21/6405.cpc. H04N21/64322.cpc.) and i7	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:38
L12	8	virtual adj machine\$1 with multicast\$4 same cloud	US-PGPUB; USPAT	OR	OFF	2018/01/22 13:41
L13	0	"20140098815".pn. and (error\$1 fail\$4)	US-PGPUB;	OR	OFF	2018/01/22 13:44

			USPAT			
L14	1	"20080040354" .pn.	US- PGPUB; USPAT	OR	OFF	2018/01/22: 13:56
L15	22	(H04N21/440218.cpc. H04N21/233.cpc. H04N21/234309.cpc. H04N21/2387.cpc. H04N21/4312.cpc. H04N21/47217.cpc. H04N21/6118.cpc. H04N21/6143.cpc. H04N21/8106.cpc. H04N21/8133.cpc. H04N21/8153.cpc. H04N21/84.cpc. H04N21/6405.cpc. H04N21/64322.cpc.) and (fail\$4 error\$1) with multicast\$3 with monitor\$4	US- PGPUB; USPAT	OR	OFF	2018/01/22: 14:05

1/ 22/ 2018 2:20:33 PM

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/538,911	06/22/2017	Edwin A. HERNANDEZ- MONDRAGON	162774.00102

CONFIRMATION NO. 8633

PUBLICATION NOTICE



29880
FOX ROTHSCHILD LLP
PRINCETON PIKE CORPORATE CENTER
997 LENOX DRIVE
BLDG. #3
LAWRENCEVILLE, NJ 08648

Title:METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS

Publication No.US-2017-0374417-A1

Publication Date:12/28/2017

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 Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, 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 <https://portal.uspto.gov/pair/PublicPair>. 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 Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET Substitute for Form PTO-1360 (For use with Form PTO/SB/06)							Application Number 15538911		Filing Date				
							Applicant(s) Edwin HERNANDEZ-MONDRAGON						
							* May be used for additional claims or amendments						
CLAIMS	AS FILED		AFTER FIRST AMENDMENT		AFTER SECOND AMENDMENT			*		*		*	
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www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
15/538,911	06/22/2017		960	162774.00102	23	4

CONFIRMATION NO. 8633

FILING RECEIPT



0000000094177813

29880
FOX ROTHSCHILD LLP
PRINCETON PIKE CORPORATE CENTER
997 LENOX DRIVE
BLDG. #3
LAWRENCEVILLE, NJ 08648

Date Mailed: 09/20/2017

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)

Edwin A. HERNANDEZ-MONDRAGON, Coral Springs, FL;

Applicant(s)

Edwin A. HERNANDEZ-MONDRAGON, Coral Springs, FL;

Power of Attorney: The patent practitioners associated with Customer Number 29880

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/US2015/067464 12/22/2015
which claims benefit of 62/095,504 12/22/2014

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: No

Permission to Access Search Results: No

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: 09/19/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/538,911**

Projected Publication Date: 12/28/2017

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV
AND SATELLITE OPERATORS

Preliminary Class

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 Assets Control, 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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/538,911				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	140		N/A				
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	240		N/A				
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	23	minus 20 = 3	x 40 =	120	OR					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = 1	x 210 =	210						
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				
				1070						
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	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))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
TOTAL ADD'L FEE								OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	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))							OR		
	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.										



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

U.S. APPLICATION NUMBER NO.	FIRST NAMED INVENTOR	ATTY. DOCKET NO.
15/538,911	Edwin A. HERNANDEZ-MONDRAGON	162774.00102

29880
FOX ROTHSCHILD LLP
PRINCETON PIKE CORPORATE CENTER
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BLDG. #3
LAWRENCEVILLE, NJ 08648

INTERNATIONAL APPLICATION NO.	
PCT/US2015/067464	
I.A. FILING DATE	PRIORITY DATE
12/22/2015	12/22/2014

CONFIRMATION NO. 8633
371 ACCEPTANCE LETTER



OC00000094177814

Date Mailed: 09/20/2017

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office, in its capacity as a Designated / Elected Office (37 CFR 1.495), has ACCEPTED the above identified international application for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above. A Filing Receipt will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE "FILING DATE or 371(c) DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1) and (c)(2) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN BELOW.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363)

06/22/2017
DATE OF RECEIPT OF 35 U.S.C.
371(c)(1) and (c)(2) REQUIREMENTS

The following items have been received:

- Indication of Small Entity Status
- Copy of the International Application filed on 06/22/2017
- Copy of the International Search Report filed on 06/22/2017
- Preliminary Amendments filed on 06/22/2017
- Information Disclosure Statements filed on 06/22/2017
- Inventor's Oath or Declaration filed on 06/26/2017
- U.S. Basic National Fees filed on 06/22/2017
- Priority Documents filed on 06/22/2017
- Power of Attorney filed on 06/26/2017

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

SHAKEEL AHMED

Telephone: (703) 756-1423

page 1 of 1

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15538911
	Filing Date	2017-06-22
	First Named Inventor	Edwin A. Hernandez-Mondragon
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	162774.00101

U.S.PATENTS						Remove
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
	1	6886178		2005-04-26	Mao et al.	
	2	7320025		2008-01-15	Steinberg et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. [Add](#)

U.S.PATENT APPLICATION PUBLICATIONS						Remove
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
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. [Add](#)

FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	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
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button. [Add](#)

NON-PATENT LITERATURE DOCUMENTS								Remove
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00101

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

If you wish to add additional non-patent literature document citation information please click the Add button

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.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00101

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Carol E. Thorstad-Forsyth/	Date (YYYY-MM-DD)	2017-07-12
Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

Electronic Acknowledgement Receipt

EFS ID:	29760289
Application Number:	15538911
International Application Number:	
Confirmation Number:	8633
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
First Named Inventor/Applicant Name:	EDWIN A. HERNANDEZ-MONDRAGON
Customer Number:	29880
Filer:	Carol E. Thorstad Forsyth/KAREN TARAGOWSKI
Filer Authorized By:	Carol E. Thorstad Forsyth
Attorney Docket Number:	162774.00101
Receipt Date:	12-JUL-2017
Filing Date:	
Time Stamp:	14:12:46
Application Type:	U.S. National Stage under 35 USC 371

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	Transmittal Letter	IDSTransmittal.pdf	40794	no	5
			39fa17a5b231ba7babda21de7e866a64ce93ab36		
Warnings:					

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	SupplementalIDS.pdf	1080212	no	4
			a71b30d0147b77bf616b7916f405b732439eb41		
Warnings:					
Information:					
Total Files Size (in bytes):			1121006		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

Docket No.: 162774.00101
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edwin A. Hernandez-Mondragon

Application No.: 15/538,911

Confirmation No.: 8633

Filed: June 22, 2017

Art Unit: N/A

For: METHOD, SYSTEM, AND APPARATUS FOR
MULTIMEDIA CONTENT DELIVERY TO
CABLE TV AND SATELLITE OPERATORS

Examiner: Not Yet Assigned

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (IDS)

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

Dear Sir:

This Supplemental Information Disclosure Statement is submitted in accordance with 37 C.F.R. 1.97, 1.98, and it is requested that the information set forth in this statement and in the listed documents be considered during the pendency of the above-identified application, and any other application relying on the filing date of the above-identified application or cross-referencing it as a related application.

1. This IDS should be considered, in accordance with 37 C.F.R. 1.97, as it is filed:
(Check one of the boxes A-D)

- ☒ A. within three months of the filing date of the above-identified national application or within three months of the entry into the national stage of the above identified national application
- ☐ B. before the mailing date of a first office action on the merits, or a first office action after filing a request for continued examination.
- ☐ C. after (A) and (B) above, but before final rejection or allowance, and Applicants have made the necessary statement in box "i" below or paid the necessary fee in box "ii" below.

ACTIVE49993506.v1-7/12/17

(check one of the boxes “i” and “ii” below:)

- ☐ i. Counsel states that, upon information and belief, each item of information listed herein was (check one of boxes (a) or (b))
- ☐ (a) first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- ☐ (b) not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.
- ☐ ii. Payment in the amount of the fee set forth in 1. 17(p), presently believed to be \$180, is enclosed.
- ☐ D. after (A), (B) and (C) above, but before payment of the issue fee: Applicant petitions under 37 C.F.R. 1.97(d) for the consideration of this IDS. Under 37 CFR 1.17(p) payment in the amount of \$180.00 is enclosed. Counsel certifies that, upon information and belief, each item of information listed herein was

(check one of the boxes “a” and “b” below:)

- ☐ (a) first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- ☐ (b) was not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.

2. In accordance with 37 C.F.R. 1.98, this IDS includes a list (e.g., form PTO/SB/08) of all patents, publications, or other information submitted for consideration by the office, either incorporated into this IDS or as an attachment hereto. A copy of each document listed is attached, except as explained below.

(check boxes A, B and/or C and fill in blanks, if appropriate.)

- ☐ A. Pursuant to the Notice issued by the United States Patent and Trademark Office dated August 5, 2003 waiving the requirements of 37 C.F.R. § 1.98(a)(2)(ii), a copy/copies of the U.S. Patent(s) and/or U.S. Patent Application Publication(s) on PTO/SB/08 is/are not being submitted.
- ☐ B. Document(s) _____ is (are) deemed substantially cumulative to document(s) _____, and, in accordance with 1.98(c), only a copy of each of the latter documents is enclosed.
- ☐ C. Certain documents were previously cited by or submitted to the Office in the following prior applications, which are relied upon under 35 U.S.C. 120:

<<INSERT SERIAL NO. & FILING DATE>>

Applicant identifies these documents by attaching hereto copies of the forms PTO-892, PTO-1449 and/or PTO/SB/08 from the files of the prior application(s) or a fresh PTO/SB/08 listing these documents, and request that they be considered and made of record in accordance with 1.98(d). Per 37 CFR 1.98(d), copies of these documents need not be filed in this application.

- ☐ 3. Cite Nos. _____ are not in the English language. In accordance with 1.98(c), Applicant states:
- ☐ An English translation of each document (or of the pertinent portions thereof), or a copy of each corresponding English-language patent or application, or English-language abstract (or claim) is enclosed.
- ☐ The requirement for a concise explanation of the relevance of any foreign language document is satisfied by the attached search report; citation of the documents cited in the search report shall not be construed as an admission that they are or are considered to be, material to patentability of the subject matter claimed herein (See MPEP §609).
- ☐ A concise explanation of the relevance of document(s) _____ is set forth as follows: [Insert concise explanation of relevance]
- ☐ A concise explanation of the relevance of document(s) _____ can be found on page(s) _____ of the specification.
- ☐ A concise explanation of document(s) _____ can be found on the attached sheet.

ACTIVE49993506.v1-7/12/17

- ☐ 4. No explanation of relevance is necessary for documents in the English language (see reply to Comments 67 in the preamble to the final rules; 1135 OG 13 at 20).
- ☐ 5. Other information being provided for the examiner's consideration follows:

6. Related Patents and Patent Applications. The Examiner is hereby advised of the existence of the patents, patent applications, and/or other proceedings before the Patent Office listed below which: (1) share at least some common disclosure with the instant application, (2) serve as the basis of priority for the instant application, and/or (3) otherwise may relate to the instant application or one or more of the other matters listed below. For completeness, the instant application is also included in the list.

It is respectfully requested that the Examiner review each matter listed below and its associated prosecution history (e.g., Office Actions, Responses to Office Actions, Interview Summaries, Notice of Allowances, and so forth) as part of evaluating the instant application. The prosecution history for each matter listed below should be readily available to the Examiner through the Patent Office's internal systems. Since these materials are already easily accessible to the Examiner, a hard copy has not been provided. However, at the Examiner's request, Applicant will provide a hard copy of any matter listed below including its prosecution history (or one or more individual documents from the prosecution history). Applicant believes that this is an efficient and effective way to allow the Examiner to consider the applicability of the matters listed below to the instant application.

The attached form PTO/SB/08b includes a reference to the information listed below concerning related patents and patent applications. Applicant requests that the Examiner initial the attached PTO/SB/08b form next to this reference to indicate that the Examiner has considered this information as part of evaluating the instant application. By initialing the form in this manner, the Examiner expressly acknowledges that he/she has considered each matter listed below, as well as all of the documents included in its prosecution history, as part of examining the instant application.

Application Serial No.	Filing Date	Title of Invention

7. In accordance with 37 C.F.R. 1.97(g) and (h), the filing of this IDS should not be construed as a representation that a search has been made or that information cited is, or is considered to be, material to patentability as defined in §1.56 (b), or that any cited document listed or attached is (or constitutes) prior art. Unless other-wise indicated, the date of publication indicated

for an item is taken from the face of the item and Applicant reserves the right to prove that the date of publication is in fact different.

Early and favorable consideration is earnestly solicited.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-1943, under Order No. 162774.00101 from which the undersigned is authorized to draw.

Dated: July 12, 2017

Respectfully submitted,

By: /Carol E. Thorstad-Forsyth/
Carol E. Thorstad-Forsyth
Registration No.: 56,455
FOX ROTHSCHILD LLP
222 Lakeview Avenue
Suite 700
West Palm Beach, Florida 33401
(561) 804-4438
(561) 835-9602 (Fax)
Attorneys/Agents For Applicant

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15538911
	Filing Date	2017-06-22
	First Named Inventor	Edwin A. Hernandez-Mondragon
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	162774.00101

U.S.PATENTS						Remove
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
	1	8769602		2014-07-01	Del Beccaro et al.	
	2	7020888		2006-03-28	Reynolds et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. [Add](#)

U.S.PATENT APPLICATION PUBLICATIONS						Remove
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
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. [Add](#)

FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	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
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button. [Add](#)

NON-PATENT LITERATURE DOCUMENTS								Remove
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		15538911
Filing Date		2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon	
Art Unit	N/A	
Examiner Name	Not Yet Assigned	
Attorney Docket Number	162774.00101	

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

If you wish to add additional non-patent literature document citation information please click the Add button

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.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15538911
Filing Date	2017-06-22
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00101

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Carol E. Thorstad-Forsyth/	Date (YYYY-MM-DD)	2017-07-11
Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

Docket No.: 162774.00101
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edwin A. Hernandez-Mondragon

Application No.: 15/538,911

Confirmation No.: 8633

Filed: June 22, 2017

Art Unit: NYA

For: METHOD, SYSTEM, AND APPARATUS FOR
MULTIMEDIA CONTENT DELIVERY TO
CABLE TV AND SATELLITE OPERATORS

Examiner: Not Yet Assigned

TRANSMITTAL LETTER

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

Dear Sir:

Attached please find the following.

1. Twelve (12) Sheets of Replacement drawings FIGS. 1-12.

Applicant states that no new matter is added.

ACTIVE\49983288.v1-7/11/17

Applicant believes no other fees are due with this response. However, if a fee is due, please charge our Deposit Account No. 50-1943, under Order No. 162744.00101 from which the undersigned is authorized to draw.

Dated: July 11, 2017

Respectfully submitted,

By: /Carol E. Thorstad-Forsyth/
Carol E. Thorstad-Forsyth
Registration No.: 56,455
FOX ROTHSCHILD LLP
222 Lakeview Avenue
Suite 700
West Palm Beach, Florida 33401
(561) 804-4438
(561) 835-9602 (Fax)
Attorneys/Agents For Applicant

ACTIVE\49983288.v1-7/11/17

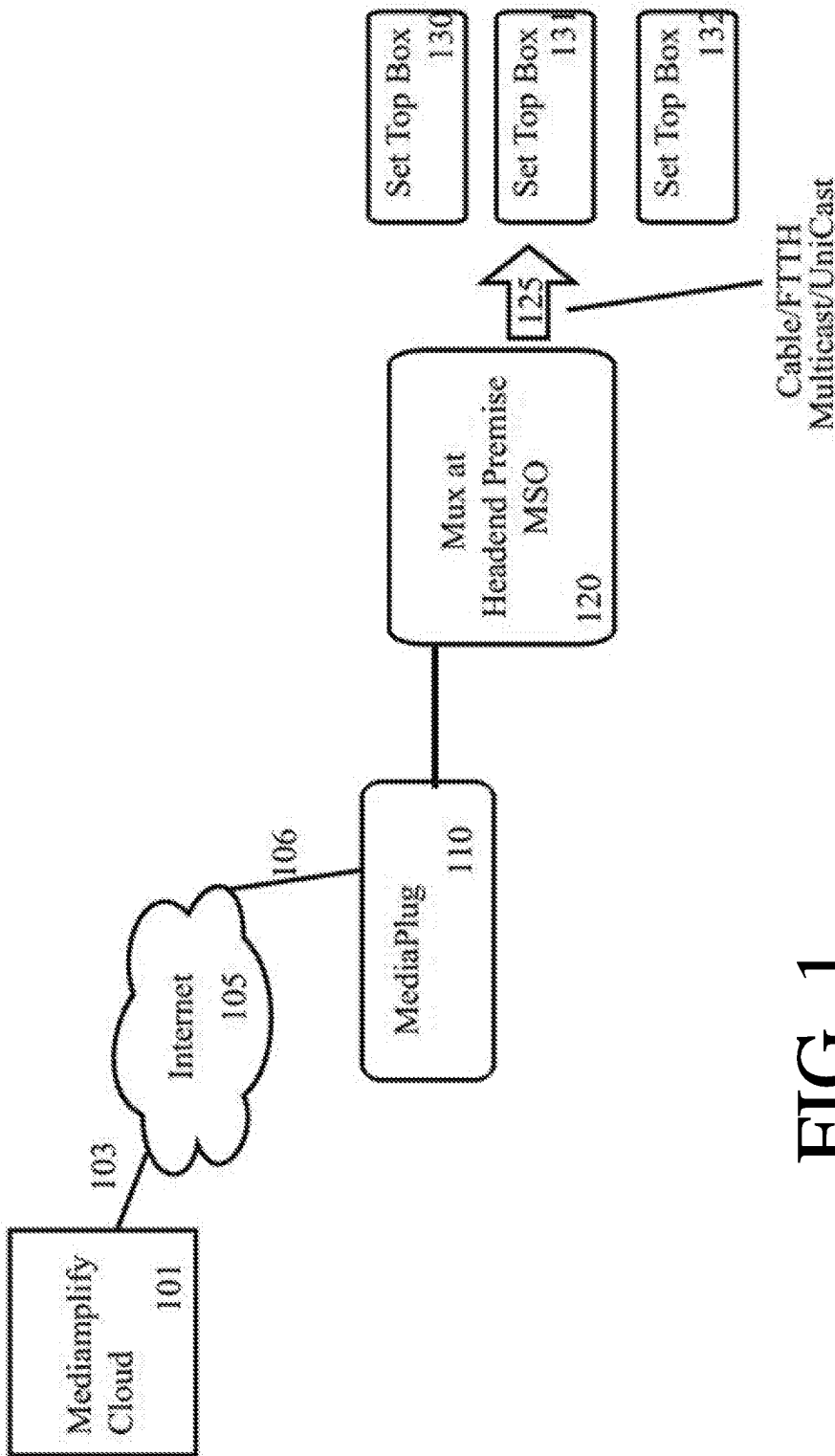


FIG. 1

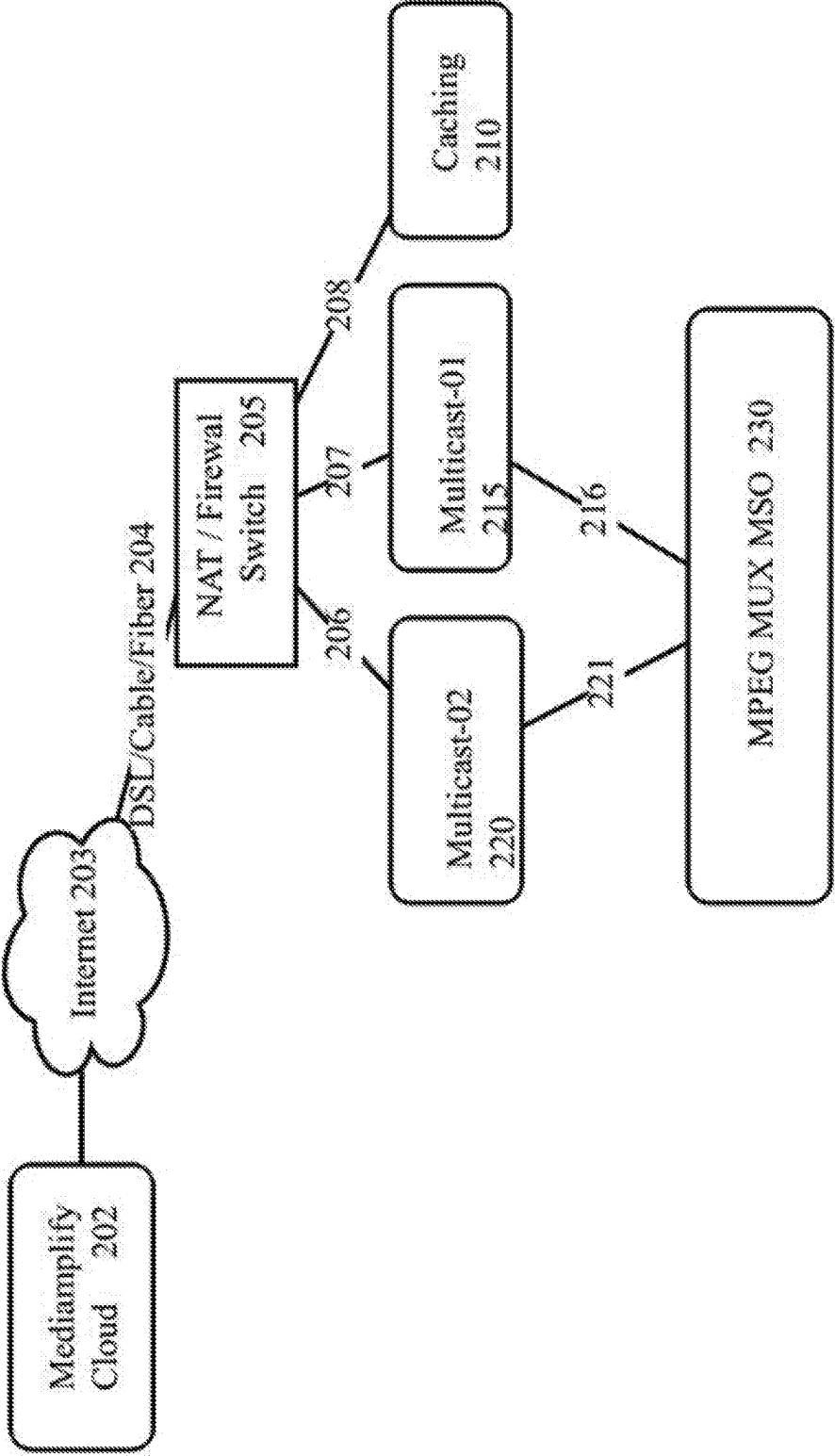


FIG. 2

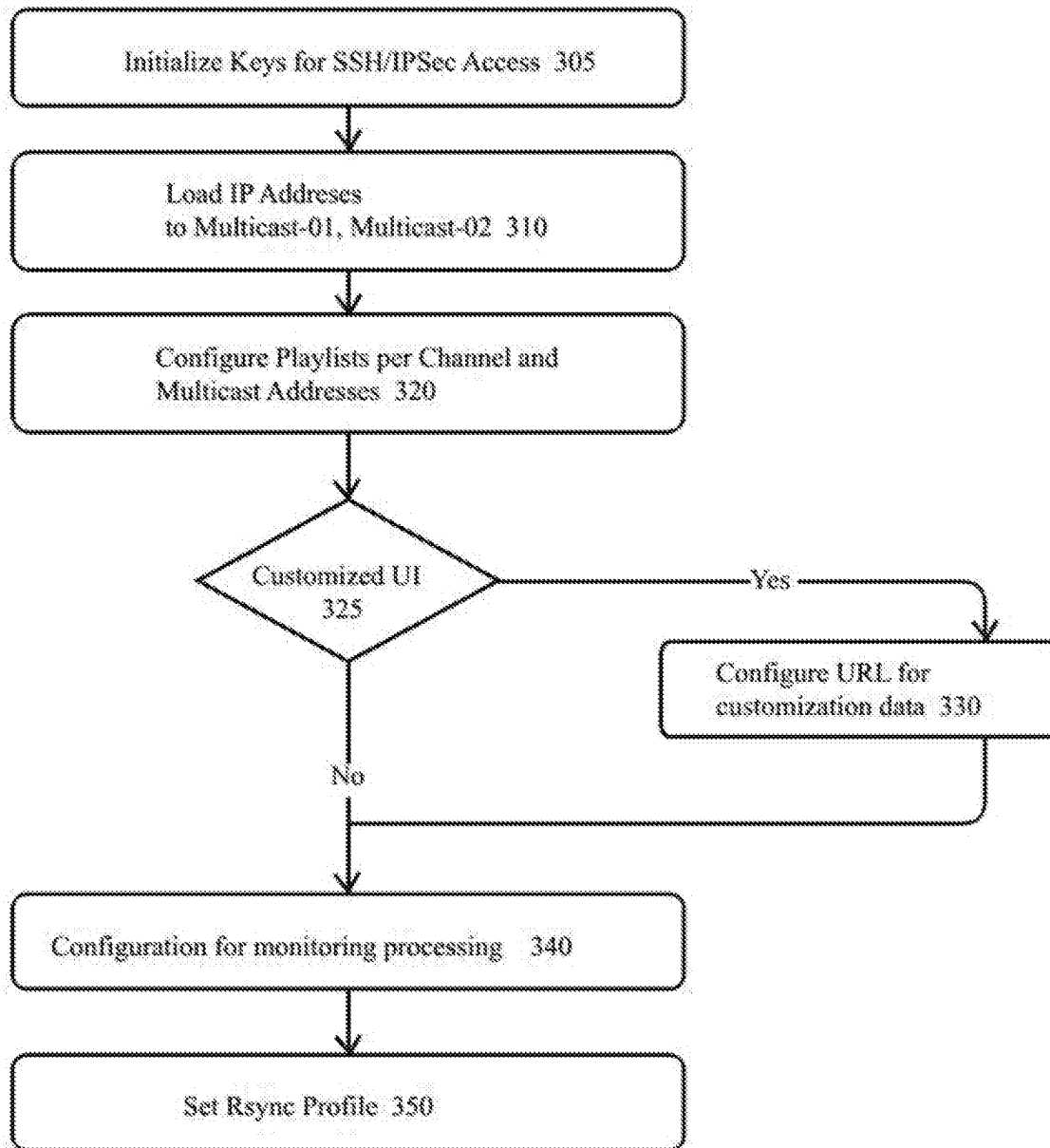


FIG. 3

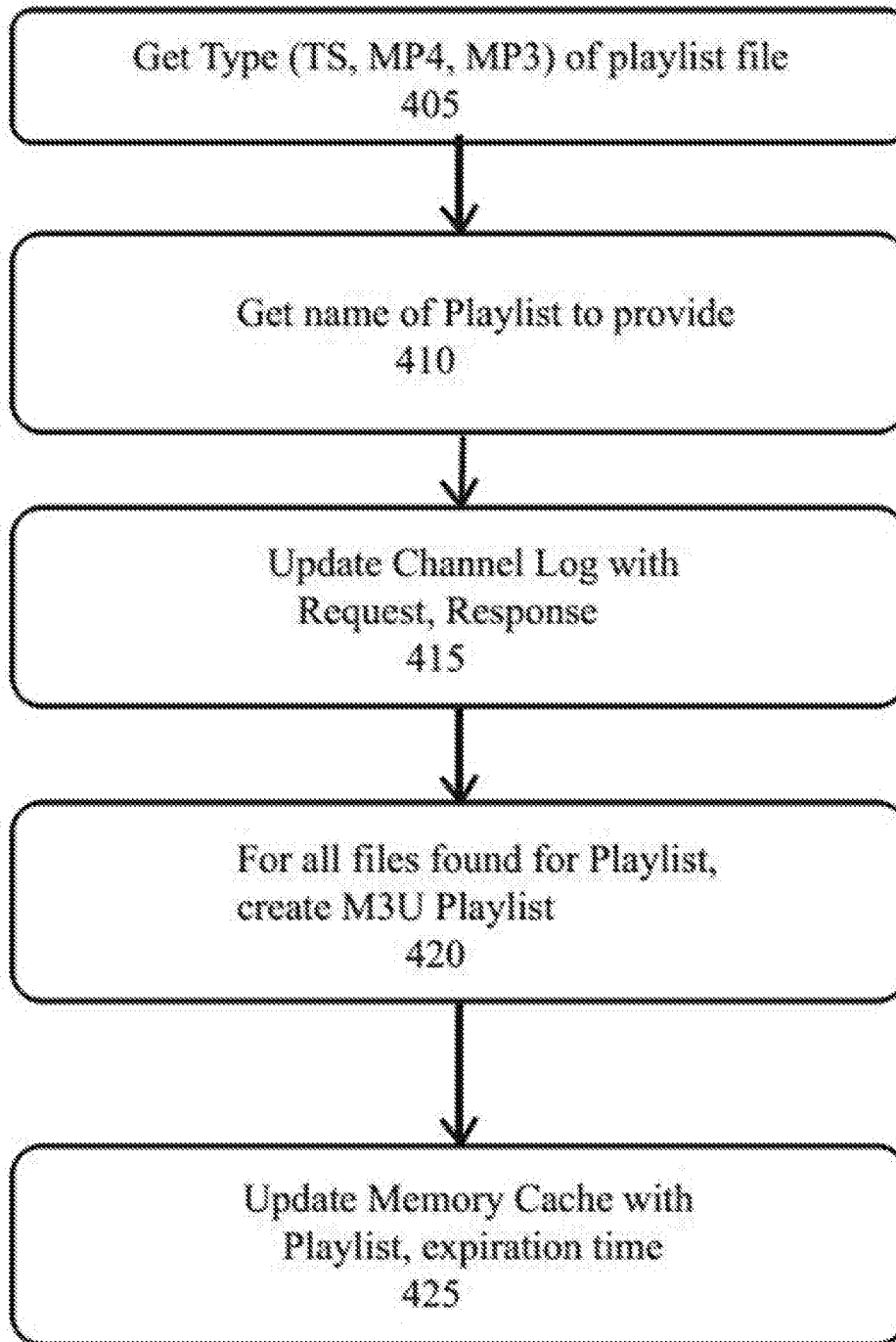


FIG. 4

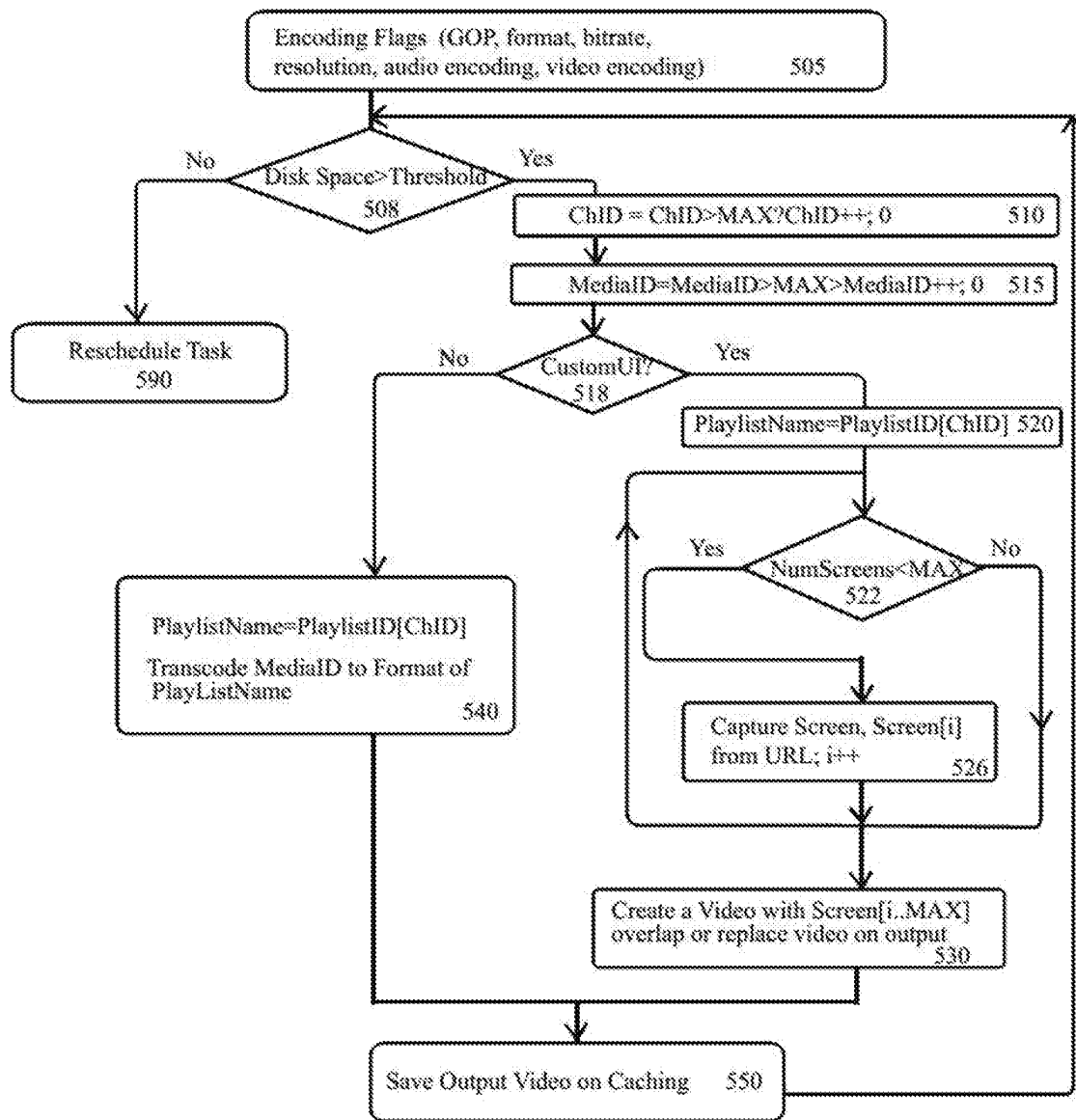


FIG. 5

600

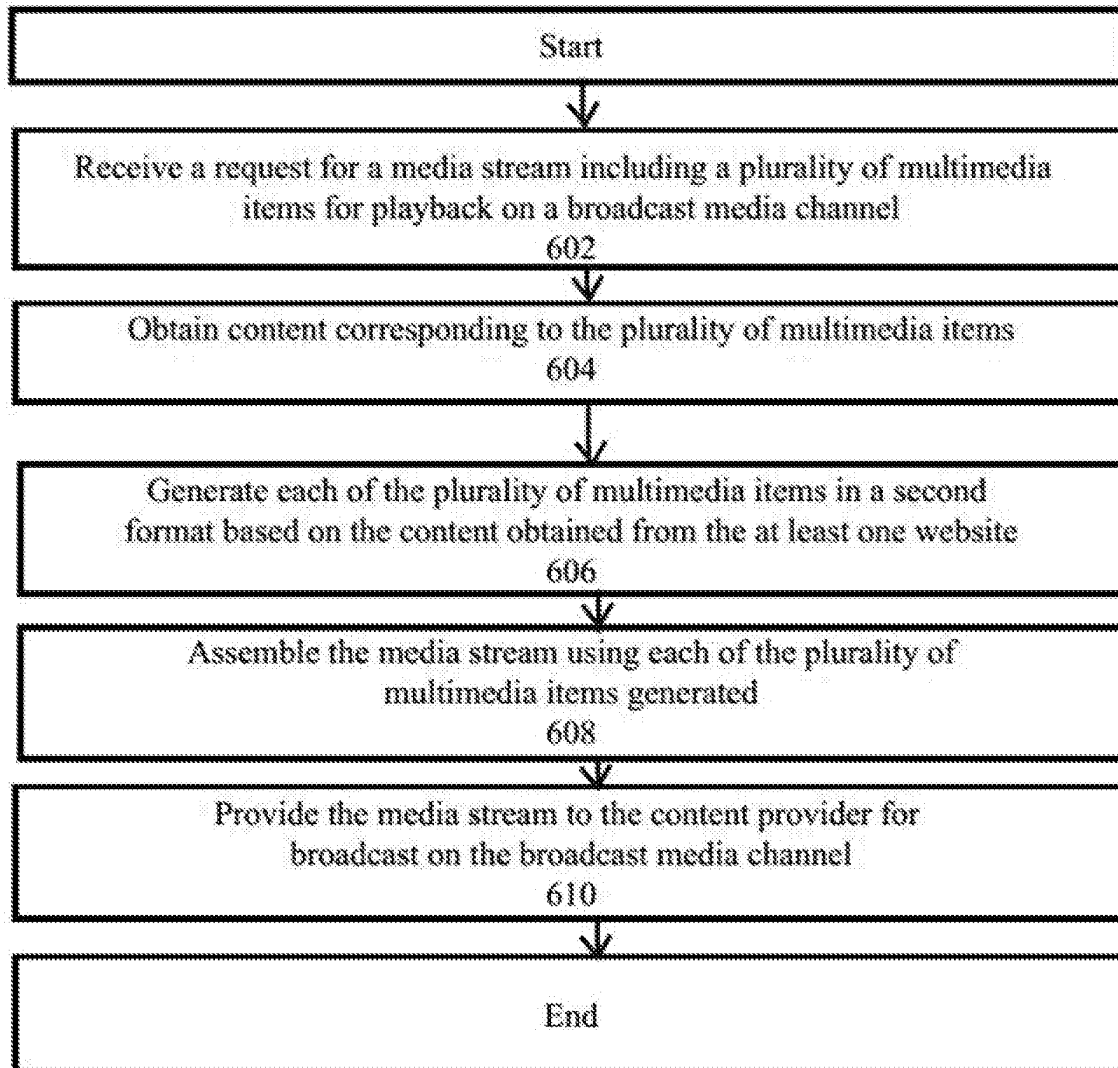


FIG. 6

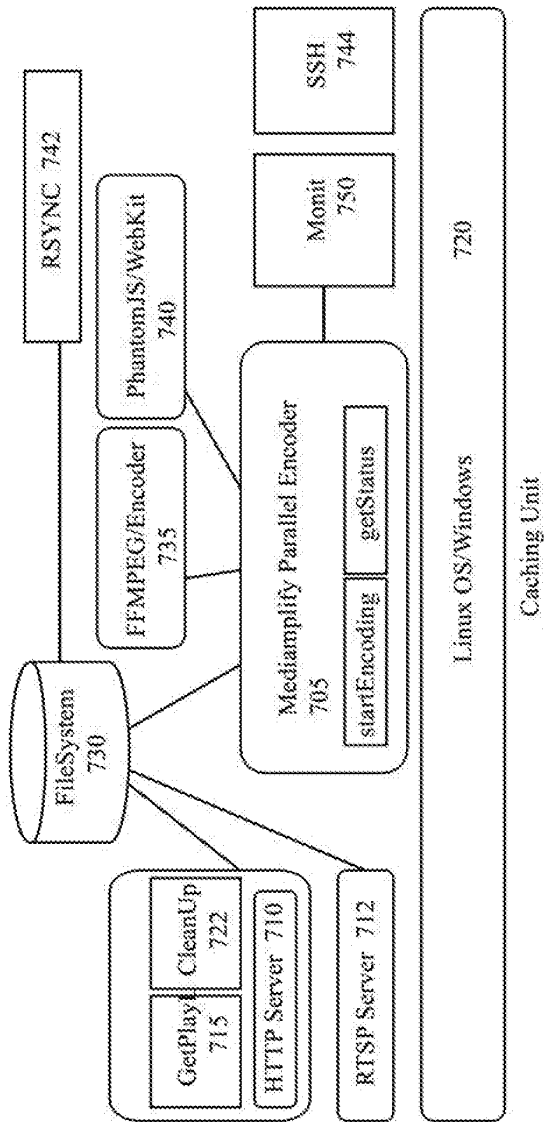
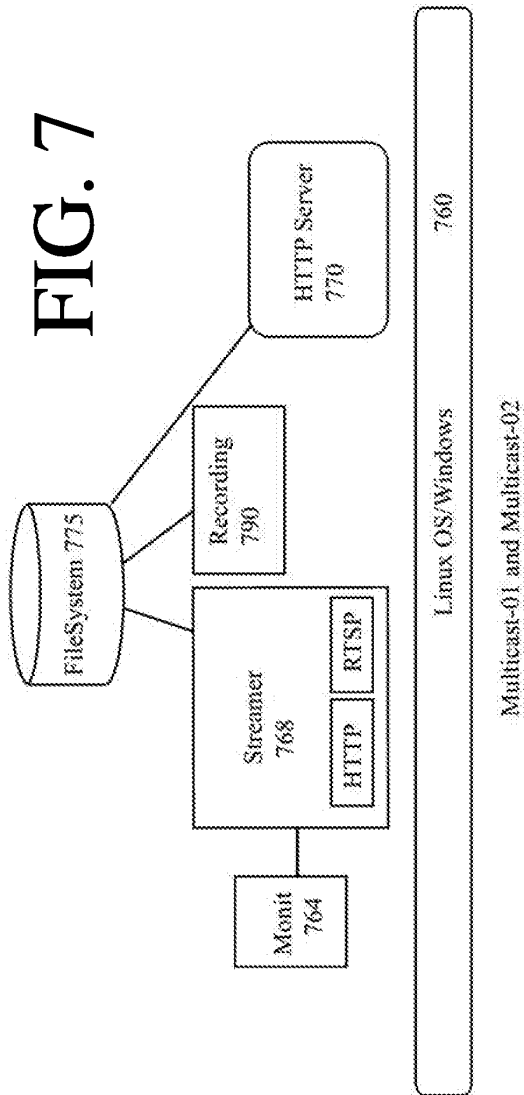


FIG. 7



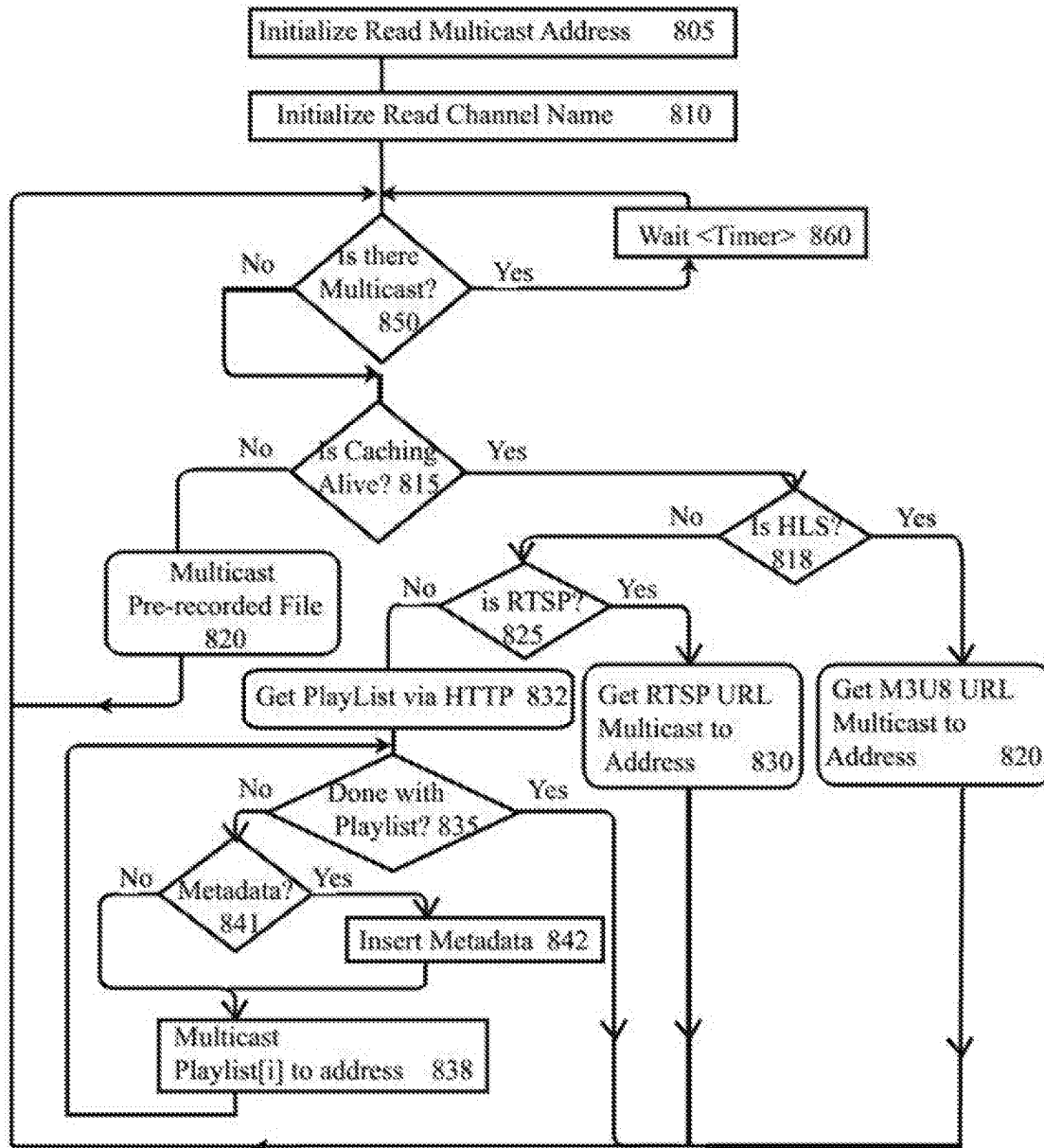


FIG. 8

Replacement Sheet 9/12

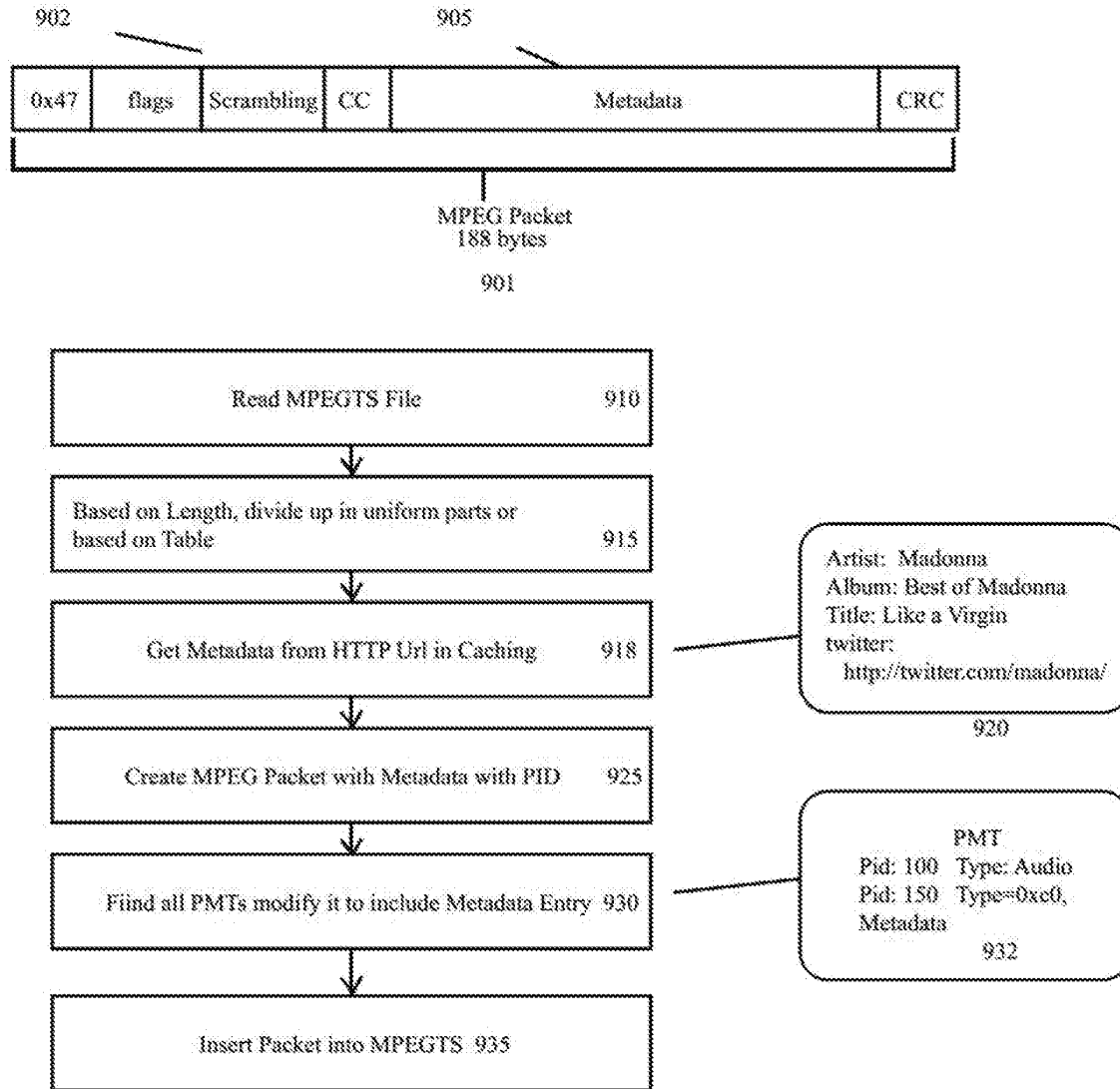


FIG. 9

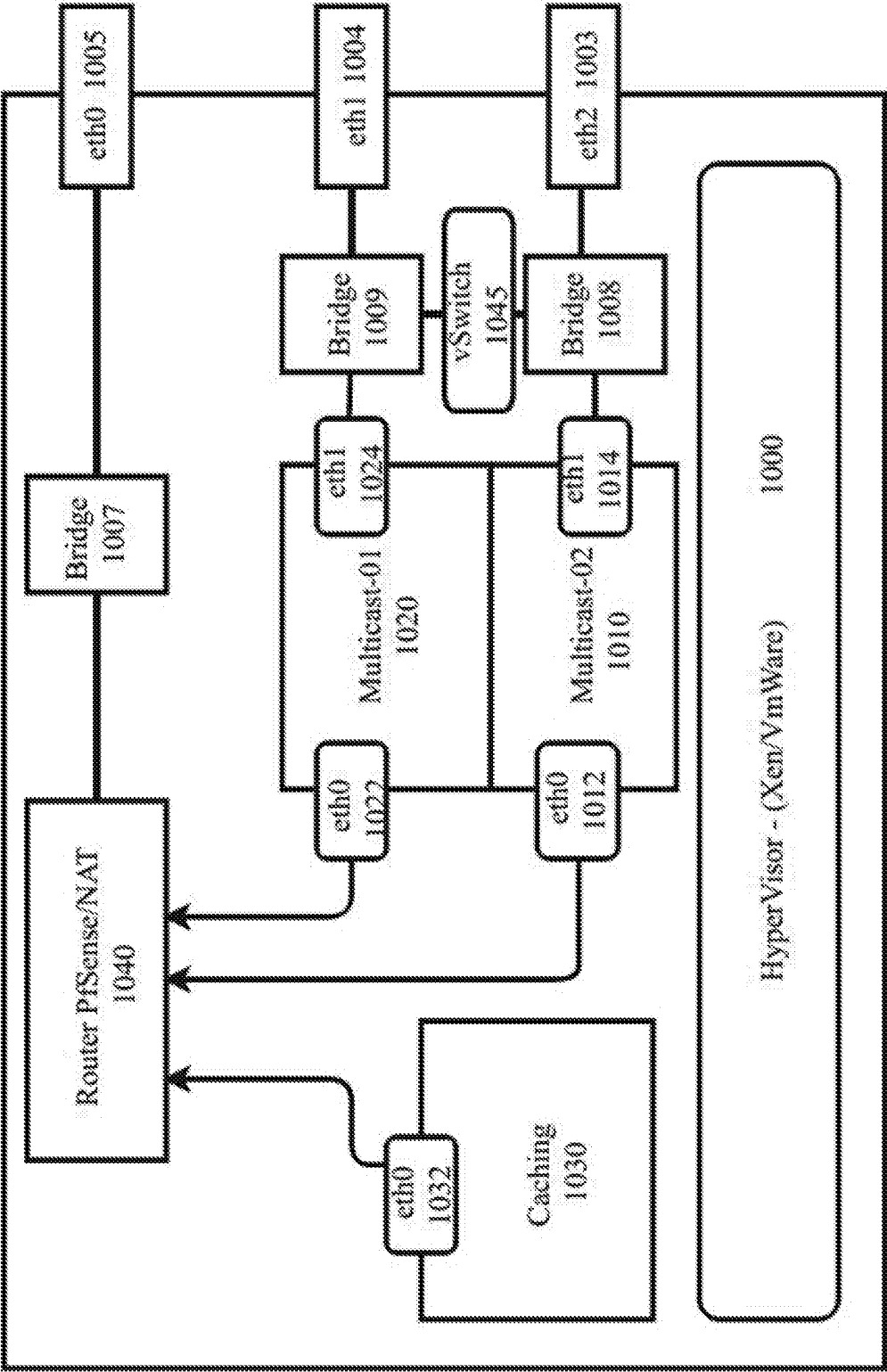


FIG. 10

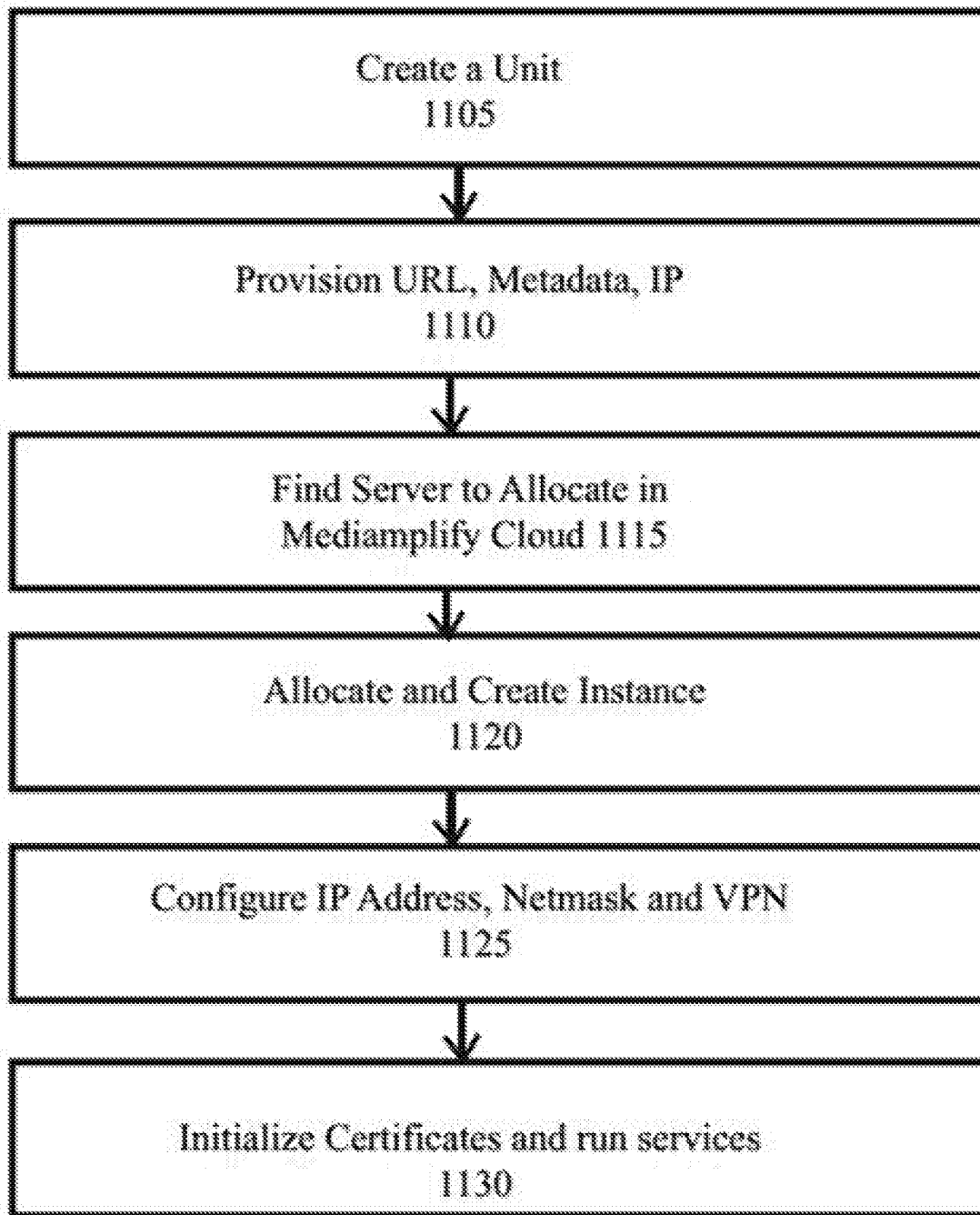
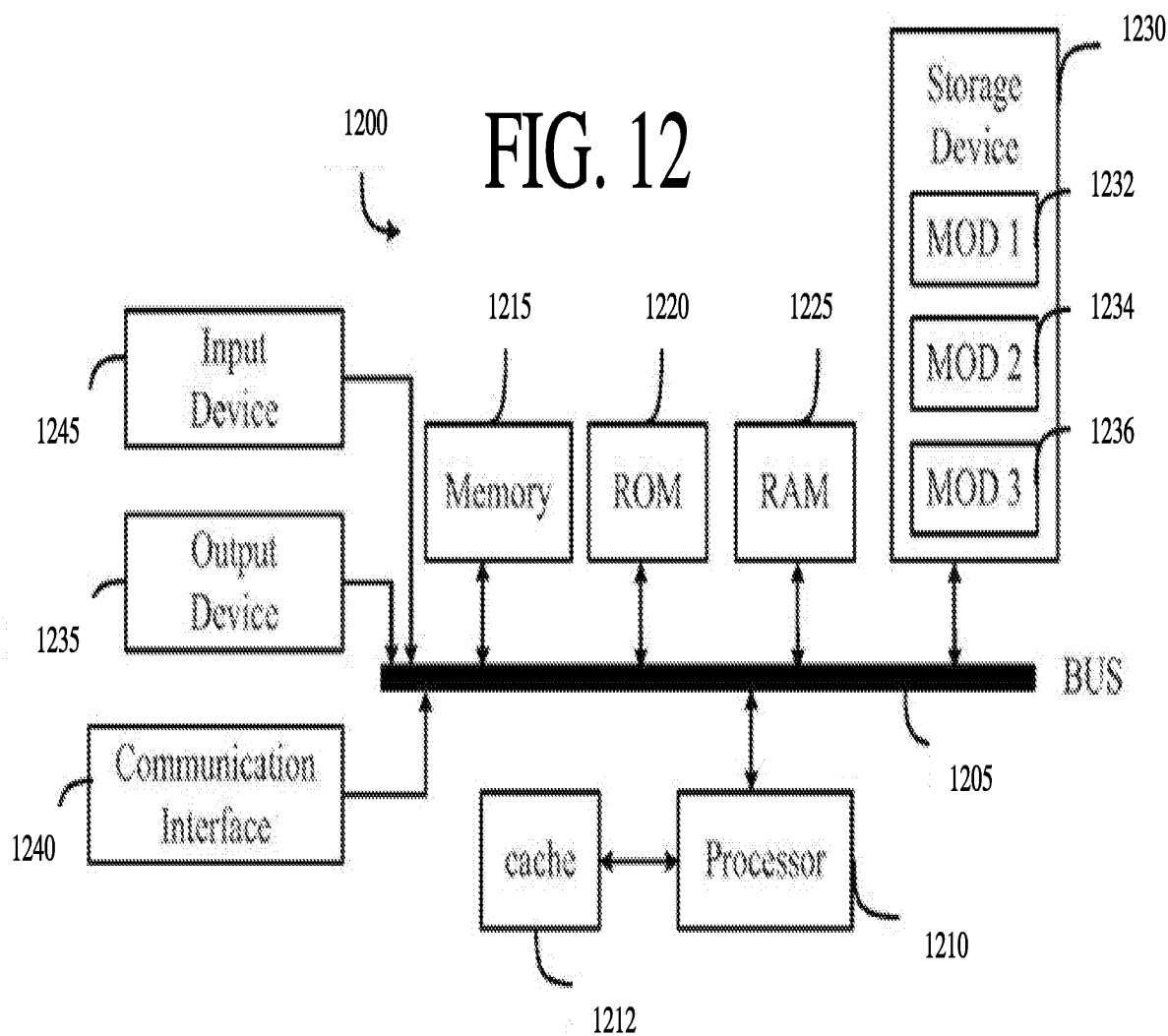


FIG. 11



Electronic Acknowledgement Receipt	
EFS ID:	29751108
Application Number:	15538911
International Application Number:	
Confirmation Number:	8633
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
First Named Inventor/Applicant Name:	EDWIN A. HERNANDEZ-MONDRAGON
Customer Number:	29880
Filer:	Carol E. Thorstad Forsyth/KAREN TARAGOWSKI
Filer Authorized By:	Carol E. Thorstad Forsyth
Attorney Docket Number:	162774.00101
Receipt Date:	11-JUL-2017
Filing Date:	
Time Stamp:	16:47:35
Application Type:	U.S. National Stage under 35 USC 371

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	Transmittal Letter	IDSTransmittal.pdf	40790	no	5
			b8e5d55fc5c4afdb01575dd98f0be3db5792a0f1		
Warnings:					

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	1082818	no	4
			da1fdc5f610b25b9eae58126a309d193a0873d7f		
Warnings:					
Information:					
3	Transmittal Letter	TransmittalLetter.pdf	18413	no	2
			28f9b933d78549acee88a1dcc706a3e5f69d1f6b		
Warnings:					
Information:					
4	Drawings-only black and white line drawings	ReplacementSheets.pdf	1331744	no	12
			3dbf1c9754db3eabd3ac5f4d373752f188dc213d		
Warnings:					
Information:					
Total Files Size (in bytes):			2473765		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

Docket No.: 162774.00101
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edwin A. Hernandez-Mondragon

Application No.: 15/538,911

Confirmation No.: 8633

Filed: June 22, 2017

Art Unit: N/A

For: METHOD, SYSTEM, AND APPARATUS FOR
MULTIMEDIA CONTENT DELIVERY TO
CABLE TV AND SATELLITE OPERATORS

Examiner: Not Yet Assigned

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (IDS)

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

Dear Sir:

This Supplemental Information Disclosure Statement is submitted in accordance with 37 C.F.R. 1.97, 1.98, and it is requested that the information set forth in this statement and in the listed documents be considered during the pendency of the above-identified application, and any other application relying on the filing date of the above-identified application or cross-referencing it as a related application.

1. This IDS should be considered, in accordance with 37 C.F.R. 1.97, as it is filed:
(Check one of the boxes A-D)

- ☒ A. within three months of the filing date of the above-identified national application or within three months of the entry into the national stage of the above identified national application
- ☐ B. before the mailing date of a first office action on the merits, or a first office action after filing a request for continued examination.
- ☐ C. after (A) and (B) above, but before final rejection or allowance, and Applicants have made the necessary statement in box "i" below or paid the necessary fee in box "ii" below.

ACTIVE49983015.v1-7/11/17

(check one of the boxes “i” and “ii” below:)

- ☐ i. Counsel states that, upon information and belief, each item of information listed herein was (check one of boxes (a) or (b))
- ☐ (a) first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- ☐ (b) not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.
- ☐ ii. Payment in the amount of the fee set forth in 1. 17(p), presently believed to be \$180, is enclosed.
- ☐ D. after (A), (B) and (C) above, but before payment of the issue fee: Applicant petitions under 37 C.F.R. 1.97(d) for the consideration of this IDS. Under 37 CFR 1.17(p) payment in the amount of \$180.00 is enclosed. Counsel certifies that, upon information and belief, each item of information listed herein was

(check one of the boxes “a” and “b” below:)

- ☐ (a) first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- ☐ (b) was not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.

2. In accordance with 37 C.F.R. 1.98, this IDS includes a list (e.g., form PTO/SB/08) of all patents, publications, or other information submitted for consideration by the office, either incorporated into this IDS or as an attachment hereto. A copy of each document listed is attached, except as explained below.

(check boxes A, B and/or C and fill in blanks, if appropriate.)

- ☐ A. Pursuant to the Notice issued by the United States Patent and Trademark Office dated August 5, 2003 waiving the requirements of 37 C.F.R. § 1.98(a)(2)(ii), a copy/copies of the U.S. Patent(s) and/or U.S. Patent Application Publication(s) on PTO/SB/08 is/are not being submitted.
- ☐ B. Document(s) _____ is (are) deemed substantially cumulative to document(s) _____, and, in accordance with 1.98(c), only a copy of each of the latter documents is enclosed.
- ☐ C. Certain documents were previously cited by or submitted to the Office in the following prior applications, which are relied upon under 35 U.S.C. 120:

<<INSERT SERIAL NO. & FILING DATE>>

Applicant identifies these documents by attaching hereto copies of the forms PTO-892, PTO-1449 and/or PTO/SB/08 from the files of the prior application(s) or a fresh PTO/SB/08 listing these documents, and request that they be considered and made of record in accordance with 1.98(d). Per 37 CFR 1.98(d), copies of these documents need not be filed in this application.

- ☐ 3. Cite Nos. _____ are not in the English language. In accordance with 1.98(c), Applicant states:
- ☐ An English translation of each document (or of the pertinent portions thereof), or a copy of each corresponding English-language patent or application, or English-language abstract (or claim) is enclosed.
- ☐ The requirement for a concise explanation of the relevance of any foreign language document is satisfied by the attached search report; citation of the documents cited in the search report shall not be construed as an admission that they are or are considered to be, material to patentability of the subject matter claimed herein (See MPEP §609).
- ☐ A concise explanation of the relevance of document(s) _____ is set forth as follows: [Insert concise explanation of relevance]
- ☐ A concise explanation of the relevance of document(s) _____ can be found on page(s) _____ of the specification.
- ☐ A concise explanation of document(s) _____ can be found on the attached sheet.

- ☐ 4. No explanation of relevance is necessary for documents in the English language (see reply to Comments 67 in the preamble to the final rules; 1135 OG 13 at 20).
- ☐ 5. Other information being provided for the examiner's consideration follows:

6. Related Patents and Patent Applications. The Examiner is hereby advised of the existence of the patents, patent applications, and/or other proceedings before the Patent Office listed below which: (1) share at least some common disclosure with the instant application, (2) serve as the basis of priority for the instant application, and/or (3) otherwise may relate to the instant application or one or more of the other matters listed below. For completeness, the instant application is also included in the list.

It is respectfully requested that the Examiner review each matter listed below and its associated prosecution history (e.g., Office Actions, Responses to Office Actions, Interview Summaries, Notice of Allowances, and so forth) as part of evaluating the instant application. The prosecution history for each matter listed below should be readily available to the Examiner through the Patent Office's internal systems. Since these materials are already easily accessible to the Examiner, a hard copy has not been provided. However, at the Examiner's request, Applicant will provide a hard copy of any matter listed below including its prosecution history (or one or more individual documents from the prosecution history). Applicant believes that this is an efficient and effective way to allow the Examiner to consider the applicability of the matters listed below to the instant application.

The attached form PTO/SB/08b includes a reference to the information listed below concerning related patents and patent applications. Applicant requests that the Examiner initial the attached PTO/SB/08b form next to this reference to indicate that the Examiner has considered this information as part of evaluating the instant application. By initialing the form in this manner, the Examiner expressly acknowledges that he/she has considered each matter listed below, as well as all of the documents included in its prosecution history, as part of examining the instant application.

Application Serial No.	Filing Date	Title of Invention

7. In accordance with 37 C.F.R. 1.97(g) and (h), the filing of this IDS should not be construed as a representation that a search has been made or that information cited is, or is considered to be, material to patentability as defined in §1.56 (b), or that any cited document listed or attached is (or constitutes) prior art. Unless other-wise indicated, the date of publication indicated

for an item is taken from the face of the item and Applicant reserves the right to prove that the date of publication is in fact different.

Early and favorable consideration is earnestly solicited.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-1943, under Order No. 162774.00101 from which the undersigned is authorized to draw.

Dated: July 11, 2017

Respectfully submitted,

By: /Carol E. Thorstad-Forsyth/
Carol E. Thorstad-Forsyth
Registration No.: 56,455
FOX ROTHSCHILD LLP
222 Lakeview Avenue
Suite 700
West Palm Beach, Florida 33401
(561) 804-4438
(561) 835-9602 (Fax)
Attorneys/Agents For Applicant

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
15/538,911	June 22, 2017

(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:

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

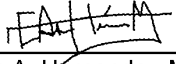
Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

- ☒ 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	Edwin A. Hernandez-Mondragon		
Title			

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.

Electronic Acknowledgement Receipt

EFS ID:	29604361
Application Number:	15538911
International Application Number:	
Confirmation Number:	8633
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
First Named Inventor/Applicant Name:	EDWIN A. HERNANDEZ-MONDRAGON
Customer Number:	29880
Filer:	Carol E. Thorstad Forsyth/KAREN TARAGOWSKI
Filer Authorized By:	Carol E. Thorstad Forsyth
Attorney Docket Number:	162774.00101
Receipt Date:	26-JUN-2017
Filing Date:	
Time Stamp:	13:14:01
Application Type:	U.S. National Stage under 35 USC 371

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	Hernandez_Declaration.pdf	72559	no	1
			0c17ea12bc10c00adf7d5fa8a3deb6a58535492		

Warnings:

Information:					
2	Power of Attorney	Hernandez_PowerofAttorney.pdf	73888	no	1
			d8d4a34a1f361a6a3e309ea25d748f64835d5ae5		
Warnings:					
Information:					
Total Files Size (in bytes):			146447		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

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

**Title of
Invention**

**METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO
CABLE TV AND SATELLITE OPERATORS**

As the below named inventor, I hereby declare that:

This declaration ☐ The attached application, or
is directed to:

☒ United States application or PCT international application number 15/538,911
filed on June 22, 2017.

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.

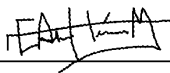
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than five (5) years, or both.

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: Edwin A. Hernandez-Mondragon Date (Optional) : _____

Signature: 

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

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C. 371		Attorney Docket No. 162774.00102
		U.S. Application No. (if known, see 37 CFR 1.5)
International Application No. PCT/US15/67464	International Filing Date December 22, 2015	Priority Date Claimed December 22, 2014
Title of Invention METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		
First Named Inventor Edwin A. Hernandez-Mondragon		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information. 1. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). NOTE: The express request under 35 U.S.C. 371(f) will not be effective unless the requirements under 35 U.S.C. 371(c)(1), (2), and (4) for payment of the basic national fee, copy of the International Application and English translation thereof (if required), and the oath or declaration of the inventor(s) have been received. 2. ☐ A copy of the International Application (35 U.S.C. 371(c)(2)) is attached hereto (not required if the International Application was previously communicated by the International Bureau or was filed in the United States Receiving Office (RO/US)). 3. An English language translation of the International Application (35 U.S.C. 371(c)(2)) a. ☐ is attached hereto. b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4). 4. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) a. ☐ is attached. b. ☐ was previously filed in the international phase under PCT Rule 4.17(iv). Items 5 to 8 below concern amendments made in the international phase. <u>PCT Article 19 and 34 amendments</u> 5. ☐ Amendments to the claims under PCT Article 19 are attached (not required if communicated by the International Bureau) (35 U.S.C. 371(c)(3)). 6. ☐ English translation of the PCT Article 19 amendment is attached (35 U.S.C. 371(c)(3)). 7. ☐ English translation of annexes (Article 19 and/or 34 amendments only) of the International Preliminary Examination Report is attached (35 U.S.C. 371(c)(5)). <u>Cancellation of amendments made in the international phase</u> 8a. ☐ Do not enter the amendment made in the international phase under PCT Article 19. 8b. ☐ Do not enter the amendment made in the international phase under PCT Article 34. NOTE: A proper amendment made in English under Article 19 or 34 will be entered in the U.S. national phase application absent a clear instruction from applicant not to enter the amendment(s). The following items 9 to 17 concern a document(s) or information included. 9. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 10. ☒ A preliminary amendment. 11. ☐ An Application Data Sheet under 37 CFR 1.76. 12. ☐ A substitute specification. NOTE: A substitute specification cannot include claims. See 37 CFR 1.125(b). 13. ☐ A power of attorney and/or change of address letter. 14. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.3 and 37 CFR 1.821–1.825. 15. ☐ Assignment papers (cover sheet and document(s)). Name of Assignee: _____ 16. ☐ 37 CFR 3.73(c) Statement (when there is an Assignee).		

ACTIVE\49742679.v1-6/22/17

U.S. APPLN. No. (if known – see 37 CFR 1.5)	INTERNATIONAL APPLICATION No. PCT/US15/067464	ATTORNEY DOCKET No. 162774.00102
17. ☒ Other items or information: International Search Report		
The following fees have been submitted.		CALCULATIONS PTO USE ONLY
18. ☒ Basic national fee (37 CFR 1.492(a)) \$280		\$ 280.00
19. ☒ Examination fee (37 CFR 1.492(c)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) \$0 All other situations \$720		\$ 720.00
20. ☒ Search fee (37 CFR 1.492(b)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) \$0 Search fee (37 CFR 1.445(a)(2)) has been paid on the international application to the USPTO as an International Searching Authority \$120 International Search Report prepared by an ISA other than the US and provided to the Office or previously communicated to the US by the IB \$480 All other situations \$600		\$ 480.00
TOTAL OF 18, 19, and 20 =		\$ 1,480.00
☐ Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing in compliance with 37 CFR 1.821(c) or (e) in an electronic medium or computer program listing in an electronic medium) (37 CFR 1.492(j)). Fee for each additional 50 sheets of paper or fraction thereof \$400		
Total Sheets	Extra Sheets	Number of each addition 50 or fraction thereof (round up to a whole number)
35 - 100 =	/ 50 =	x \$400
		\$
Surcharge of \$140.00 for furnishing any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h)).		\$ 140.00
CLAIMS	NUMBER FILED	NUMBER EXTRA
Total claims	23 - 20 =	3
Independent claims	4 - 3 =	1
		x \$80
		x \$420
MULTIPLE DEPENDENT CLAIM(S) (if applicable)		+ \$780
Processing fee of \$140.00 for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i)).		\$
TOTAL OF ABOVE CALCULATIONS =		\$ 2,140.00
☒ Applicant asserts small entity status. See 37 CFR 1.27. Fees above are reduced by ½.		- 1,070.00
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Fees above are reduced by ¾. Applicant must attach form PTO/SB/15A or B or equivalent.		
TOTAL NATIONAL FEE =		\$ 1,070.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property.		\$
TOTAL FEES ENCLOSED =		\$ 1,070.00
		Amount to be refunded: \$
		Amount to be charged: \$

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.

a. ☐ A check in the amount of \$ _____ to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. 50-1943 in the amount of \$ _____ to cover the above fees.

c. ☒ The Director is hereby authorized to charge additional fees which may be required, or credit any overpayment, to Deposit Account No. 50-1943 as follows:

i. ☒ any required fee.

ii. ☐ any required fee except for excess claims fees required under 37 CFR 1.492(d) and (e) and multiple dependent claim fee required under 37 CFR 1.492(f).

d. ☒ Fees are to be charged to a credit card. **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. The PTO-2038 should only be mailed or faxed to the USPTO. However, when paying the basic national fee, the PTO-2038 may NOT be faxed to the USPTO.

ADVISORY: If filing by EFS-Web, do **NOT** attach the PTO-2038 form as a PDF along with your EFS-Web submission. Please be advised that this is **not** recommended and by doing so your **credit card information may be displayed via PAIR**. To protect your information, it is recommended to pay fees online by using the electronic payment method.

NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.

Correspondence Address

☒ The address associated with Customer Number: 29880 OR ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country			Telephone		
Email					

Signature	/Carol E. Thorstad-Forsyth/	Date	June 22, 2017
Name (Print/Type)	Carol E. Thorstad-Forsyth	Registration No. (Attorney/Agent)	56,455

[Page 3 of 3]

ACTIVE\49742679.v1-6/22/17

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Edwin A. Hernandez-Mondragon	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	162774.00102	

U.S.PATENTS						Remove
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
	1					

If you wish to add additional U.S. Patent citation information please click the Add button.

Add

U.S.PATENT APPLICATION PUBLICATIONS						Remove
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
	1	20020138852	A1	2002-09-26	Reynolds et al.	
	2	20090178003	A1	2009-07-09	Fiedler	
	3	20080040354	A1	2008-02-14	Ray et al.	
	4	20140068690	A1	2014-03-06	Luthra et al.	
	5	20140143437	A1	2014-05-22	Mathur et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Edwin A. Hernandez-Mondragon	
Art Unit	N/A	
Examiner Name	Not Yet Assigned	
Attorney Docket Number	162774.00102	

	6	20030115612	A1	2003-06-19	Mao et al.	
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If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	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
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	International Search Report dated April 20, 2016 for PCT/US15/67464	

If you wish to add additional non-patent literature document citation information please click the Add button

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.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Edwin A. Hernandez-Mondragon
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	162774.00102

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Carol E. Thorstad-Forsyth/	Date (YYYY-MM-DD)	2017-06-22
Name/Print	Carol E. Thorstad-Forsyth	Registration Number	56,455

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US15/67464

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - H04N 21/84 (2016.01) CPC - H04N 21/84 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) Classifications: H04N 21/84, 21/85, 21/236, 21/2343, 21/235, 21/00; H04H 20/51, 20/00 (2016.01) CPC Classifications: H04N 21/84, 21/85, 21/236, 21/2343, 21/235, 21/00; H04H 20/51, 20/00 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) PatSeer (US, EP, WO, JP, DE, GB, CN, FR, KR, ES, AU, IN, CA, Other Countries (INPADOC), RU, AT, CH, TH, BR, PH); IEEE/IEEEExplore; Google/Google Scholar; IP.com; Keywords: content, video, audio, image, multi-media, music, formal, assemble, combine, aggregate, stream, provider, operator, broadcast, website, URL, internet		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0138852 A1 (REYNOLDS, S et al.) 26 September 2002; abstract; paragraphs [0013], [0020], [0022]-[0024], [0045], [0048]-[0050], [0053], [0054], [0057]	1-4, 6-10, 17, 18, 21
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Y		5, 11, 19, 20
Y	US 2009/0178003 A1 (FIEDLER, M) 09 July 2009; abstract	5
Y	US 2008/0040354 A1 (RAY, R et al.) 14 February 2008; paragraph [0099]	11
Y	US 2014/0068690 A1 (LUTHRA, A et al.) 06 March 2014; paragraph [0013]	19
Y	US 2014/0143437 A1 (ADOBE SYSTEMS INCORPORATED) 22 May 2014; paragraphs [0030], [0043], [0065]	20
A	US 2003/0115612 A1 (MAO, W et al.) 19 June 2003; entire document	1-11, 17-21
☐ 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 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 20 April 2016 (20.04.2016)		Date of mailing of the international search report 05 MAY 2016
Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300		Authorized officer Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US15/67464

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.:
1-11 and 17-21

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.

Form PCT/ISA/210 (continuation of first sheet (2)) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/US15/67464

-***-Continued from Box III Observations where unity of invention is lacking -***-

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 1-11 and 17-21 are directed toward assembling media streams using generated multimedia items.

Group II: Claims 12-16 are directed toward merging a plurality of screen captures.

Group III: Claims 22-23 are directed toward provisioning a first, second, and third virtual machine.

The inventions listed as Groups I-III 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 generating each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is compatible with the at least one content provider; and assembling the at least one media stream using each of the plurality of multimedia items generated, which are not present in Groups II-III.

The special technical features of Group II include retrieving, from a cloud based service offering the multimedia content in a first format that is not compatible with a required format associated with the content provider, a plurality of screen captures corresponding to a video component of the multimedia content and at least one audio file corresponding to an audio component of the multimedia content; and merging the plurality of screen captures with the at least one audio file to create the multimedia content in the required format, which are not present in Groups I and III.

The special technical features of Group III include provisioning, on at least one server, a first virtual machine configured to obtain and cache multimedia content from at least one cloud-based service; provisioning, on the at least one server, a second virtual machine communicatively coupled to the first virtual machine and to a cable operator, wherein the second virtual machine is configured to multicast the multimedia content from the first virtual machine to the cable operator; and provisioning, on the at least one server, a third virtual machine communicatively coupled to the first virtual machine, the second virtual machine, and the cable operator, wherein the third virtual machine is configured to monitor an output from the second virtual machine to determine if a failure condition has occurred, which are not present in Groups I-II.

The common technical features shared by Groups I-III are receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel; and sending the multimedia content to the content provider.

However, these common features are previously disclosed by US 2014/0223475 A1 to TOUT, INC. (hereinafter "Tout"). Tout discloses receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel (views receive media streams via televisions, PCs, etc; paragraph [0073]); and sending the multimedia content to the content provider (user annotates streams and uploads to online video distribution and access provider; paragraph [0070]).

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

Docket No.: 162774.00102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edwin A. Hernandez-Mondragon

Application No.: Not Yet Assigned

Filed: Herewith

Art Unit: Not Yet Assigned

For: METHOD, SYSTEM, AND APPARATUS FOR
MULTIMEDIA CONTENT DELIVERY TO
CABLE TV AND SATELLITE OPERATORS

Examiner: Not Yet Assigned

PRELIMINARY AMENDMENT

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

Dear Sir/Madam:

INTRODUCTORY COMMENTS

Prior to examination on the merits, please amend the above-identified U.S. patent application as follows.

Amendments to the Specification begin on page 2 of this paper.

Remarks/Arguments begin on page 3 of this paper.

AMENDMENT TO THE SPECIFICATION

Please replace the Cross-Reference to Related Applications paragraph [0001] with the following amended paragraph.

[0001] This application claims priority to International Patent Application No. PCT/US2015/067464, filed on December 22, 2015, and U.S. Provisional Application 62/095,504, filed December 22, 2014, the complete disclosures of which ~~[[is]]~~are incorporated herein by reference in ~~[[its]]~~their entirety.

REMARKS

Prior to formal examination of the above-identified application, the specification has been amended to revise the priority application information. No new matter is added.

In view of the above amendments, Applicant believes the pending application is in condition for allowance.

Applicant believes that no fee is due with this response. However, if a fee is due, please charge Deposit Account No. 50-1943, under Order No. 162774.00102, from which the undersigned is authorized to draw.

Dated: June 22, 2017

Respectfully submitted,

Electronic Signature: /Carol E. Thorstad-Forsyth/

Carol E. Thorstad-Forsyth

Registration No.: 56,455

FOX ROTHSCHILD LLP

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(561) 804-4438

(609) 896-1469 (Fax)

Attorneys/Agents For Applicant

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS			
First Named Inventor/Applicant Name:	EDWIN A. HERNANDEZ-MONDRAGON			
Filer:	Carol E. Thorstad Forsyth/KAREN TARAGOWSKI			
Attorney Docket Number:				
Filed as Small Entity				
Filing Fees for U.S. National Stage under 35 USC 371				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
BASIC NATIONAL STAGE FEE	2631	1	140	140
Natl Stage Search Fee - U.S. was the ISA	2641	1	60	60
NATL STAGE EXAM FEE - ALL OTHER CASES	2633	1	360	360
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2615	3	40	120
INDEPENDENT CLAIMS IN EXCESS OF 3	2614	1	210	210
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
OATH/DECL > 30 MOS FROM 371 COMMENCEMENT	2617	1	70	70
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt

EFS ID:	29580014
Application Number:	15538911
International Application Number:	PCT/US15/67464
Confirmation Number:	8633
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
First Named Inventor/Applicant Name:	EDWIN A. HERNANDEZ-MONDRAGON
Customer Number:	29880
Filer:	Carol E. Thorstad Forsyth/KAREN TARAGOWSKI
Filer Authorized By:	Carol E. Thorstad Forsyth
Attorney Docket Number:	
Receipt Date:	22-JUN-2017
Filing Date:	
Time Stamp:	15:32:36
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 960
RAM confirmation Number	062317INTEFSW15334100
Deposit Account	501943
Authorized User	Karen Taragowski
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 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)

37 CFR 1.492 (National application filing, search, and examination fees)

37 CFR 1.492(a) (Basic national fee only)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	TransmittalLetter.pdf	48603	no	3
			a8bc5c377166cf71c5fc7fed0478504f90793103		
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	1083468	no	4
			daaa2466a33ae2ed7b606d66878997de5c44e156		
Warnings:					
Information:					
3	Non Patent Literature	NPL.pdf	231393	no	3
			2e0783255d79994e8848fac636357815f6f20efa		
Warnings:					
Information:					
4	Preliminary Amendment	PreliminaryAmendment.pdf	22177	no	3
			b96410fd9319dd347837f034ab5b204533325bfe		
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	40205	no	2
			5ad499b4c7b0a2cd5e237724bde7eda5f35366a5		
Warnings:					
Information:					
Total Files Size (in bytes):			1425846		

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 PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 35116-00001	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2015/067464	International filing date (<i>day/month/year</i>) 22 December 2015 (22.12.2015)	Priority date (<i>day/month/year</i>) 22 December 2014 (22.12.2014)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant HERNANDEZ-MONDRAGON, Edwin A.			

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 44bis.3(c) and 93bis.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 44bis .2).		

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland		Date of issuance of this report 27 June 2017 (27.06.2017)
Facsimile No. +41 22 338 82 70		Authorized officer Simin Baharlou
Form PCT/IB/373 (January 2004)		e-mail: pct.team9@wipo.int

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Roberto Rodriguez
525 Okeechobee Blvd.
15th Floor
West Palm Beach, Florida 33401
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) 05 MAY 2016

Applicant's or agent's file reference
35116-00001

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US15/67464

International filing date (day/month/year)

22 December 2015 (22.12.2015)

Priority date (day/month/year)

22 December 2014 (22.12.2014)

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

IPC(8) - H04N 21/84 (2016.01)

CPC - H04N 21/84

Applicant

EDWIN A. HERNANDEZ-MONDRAGON

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 43bis.1(a)(i) with regard to novelty, inventive step and 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 66.1bis(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/
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-8300

Date of completion of this opinion

20 April 2016 (20.04.2016)

Authorized officer

Shane Thomas

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US15/67464

Box No. 1 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:

- a. ☐ forming part of the international application as filed:
☐ in the form of an Annex C/ST.25 text file.
☐ on paper or in the form of an image file.
- b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
- c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

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 forming part of 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/US15/67464

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 1-11 and 17-21 are directed toward assembling media streams using generated multimedia items.

Group II: Claims 12-16 are directed toward merging a plurality of screen captures.

Group III: Claims 22-23 are directed toward provisioning a first, second, and third virtual machine.

The inventions listed as Groups I-III 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 generating each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is compatible with the at least one content provider; and assembling the at least one media stream using each of the plurality of multimedia items generated, which are not present in Groups II-III.

The special technical features of Group II include retrieving, from a cloud based service offering the multimedia content in a first format that is not compatible with a required format associated with the content provider, a plurality of screen captures corresponding to a video component of the multimedia content and at least one audio file corresponding to an audio component of the multimedia content; and merging the plurality of screen captures with the at least one audio file to create the multimedia content in the required format, which are not present in Groups I and III.

The special technical features of Group III include provisioning, on at least one server, a first virtual machine configured to obtain and cache multimedia content from at least one cloud-based service; provisioning, on the at least one server, a second virtual machine communicatively coupled to the first virtual machine and to a cable operator, wherein the second virtual machine is configured to multicast the multimedia content from the first virtual machine to the cable operator; and provisioning, on the at least one server, a third virtual machine communicatively coupled to the first virtual machine, the second virtual machine, and the cable operator, wherein the third virtual machine is configured to monitor an output from the second virtual machine to determine if a failure condition has occurred, which are not present in Groups I-II.

The common technical features shared by Groups I-III are receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel; and sending the multimedia content to the content provider.

However, these common features are previously disclosed by US 2014/0223475 A1 to TOUT, INC. (hereinafter "Tout"). Tout discloses receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel (views receive media streams via televisions, PCs, etc; paragraph [0073]); and sending the multimedia content to the content provider (user annotates streams and uploads to online video distribution and access provider; paragraph [0070]).

Since the common technical features are previously disclosed by the Tout reference, these common features are not special and so Groups I-III 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. 1-11 and 17-21

Form PCT/ISA/237 (Box No. IV) (January 2015)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US15/67464

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

1. Statement

Novelty (N)	Claims	5, 11, 19, 20	YES
	Claims	1-4, 6-10, 17, 18, 21	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-11, 17-21	NO
Industrial applicability (IA)	Claims	1-11, 17-21	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1-4, 6-10, 17, 18 and 21 lack novelty under PCT Article 33(2) as being anticipated by US 2002/0138852 A1 to REYNOLDS et al. (hereinafter "Reynolds").

As per claim 1, Reynolds discloses a computer-implemented method comprising: receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items (a content provider employs a framework definition to specify (request) and deliver a package of related content streams (multimedia items), providing information necessary to build, format, transmit and display the cable broadcasted content (for playback on a broadcast media channel); abstract; paragraphs [0013], [0020]); obtaining content corresponding to the plurality of multimedia items from at least one website offering the content in at least one first format (interactive HTML (first format) content is associated with various video streams (plurality of multimedia items), where the HTML content and streams are provided via a corresponding URL; paragraphs [0022]-[0024], [0057]); generating each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is compatible with the at least one content provider (video, audio assets and HTML metadata obtained via URL's (based on the content obtained from the at least one website) are packaged into a format (second format) that is compatible with the delivery system (provider) to prepare the video for compliant transport via an MPEG transport format; paragraphs [0048]-[0050], [0057]); assembling the at least one media stream using each of the plurality of multimedia items generated (video, audio assets and HTML metadata obtained via URL's are packaged (assembling) into a format (using each of the plurality of multimedia items generated) that is compatible with the delivery system to prepare the video for compliant transport via an MPEG transport format; paragraphs [0048]-[0050], [0057]); and providing the at least one media stream to the content provider for broadcast on the broadcast media channel (the framework controller formats and organize media components into streams that are provided to the delivery system to be delivered by the delivery system, using a transmission apparatus such as employed by cable and satellite broadcast systems; paragraphs [0045], [0053], [0054]).

As per claim 2, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, wherein the obtaining comprises: retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item (metadata may comprise graphics data, sound data (audio file), HTML data such as interactive HTML pages (screen captures) associated with matches being broadcasted via video feed and video data, the metadata being time synchronized to content such as an audio track or be content related; paragraphs [0022]-[0024], [0028], [0048]).

As per claim 3, Reynolds discloses the method of claim 2. Additionally, Reynolds discloses, wherein the generating comprises: combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items (multiple media and metadata streams having content such as audio data and interactive HTML pages are combined into a framework for distribution of the content (multimedia items) to a viewer; paragraphs [0010], [0022]-[0024], [0048]).

As per claim 4, Reynolds discloses the method of claim 2. Additionally, Reynolds discloses, wherein the retrieving of the plurality of screen captures comprises obtaining the plurality of screen captures from a playback of a video on the at least one website (interactive HTML pages (screen captures), having associated URL's, can provide detailed commentary for an earlier match shown via video feed (obtaining the plurality of screen captures from a playback of a video); paragraphs [0010], [0022]-[0024], [0057]).

As per claim 6, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, further comprising: identifying the at least one website based on a channel identifier associated with the broadcast media channel (interactive HTML pages, having associated URL's (website based on a channel identifier), can provide detailed commentary for a match shown via broadcast video feed; paragraphs [0010], [0022]-[0024], [0057]).

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

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US15/67464

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 7, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, further comprising: querying the content provider to determine the second format (a mechanism permits a content provider to define a framework (querying the content provider) for delivering a package of related content, using a framework definition that provides information to format (second format) disparate content streams for compatibility with the provider; abstract; paragraph [0049]), wherein the second format corresponds to a Moving Picture Experts Group (MPEG) format (video and audio assets are packaged into a format that is compatible with the delivery system, which includes preparing the video for compliant transport via an MPEG transport format; paragraph [0049]).

As per claim 8, Reynolds discloses the method of claim 3. Additionally, Reynolds discloses, further comprising: detecting a change at the at least one website corresponding to at least one of the plurality of multimedia items (interactive HTML pages (screen captures), having associated URL's (website), shows match statistics (multimedia item) for a match in progress and is closely synchronized (detecting change) with a broadcast video feed (multimedia items); paragraphs [0010], [0022]-[0024], [0057]); in response to detecting the change, retrieving a new plurality of screen captures from the at least one website for the at least one of the plurality of multimedia items (interactive HTML pages (screen captures), having associated URL's (website), shows match statistics (multimedia item) for a match in progress and is closely synchronized (in response to detecting the change, retrieving a new plurality of screen captures) with a broadcast video feed (multimedia items); paragraphs [0010], [0022]-[0024], [0057]); and reassembling the at least one of the plurality of multimedia items using the new plurality of screen captures to yield an updated multimedia item (interactive HTML pages (screen captures), having associated URL's (website), shows match statistics (multimedia item) for a match in progress and is closely synchronized using metadata packaging (reassembling the at least one of the plurality of multimedia items using the new plurality of screen captures to yield an updated multimedia item) with a broadcast video feed (multimedia items); paragraphs [0010], [0022]-[0024], [0050], [0057]).

As per claim 9, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, wherein the content provider is a cable television operator or a satellite television operator (the delivery system (content provider) may comprise a headend system and transmission apparatus such as employed by cable, satellite, terrestrial, and other broadcast systems; paragraph [0045]).

As per claim 10, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, wherein providing the at least one media stream to the content provider comprises streaming the at least one media stream to an MPEG multiplexer associated with the content provider (a framework controller may utilize the framework definition to access media content, to process and format the media content for delivery system (provider) compatible MPEG transport, and to control packaging and multiplexing of the content for broadcast; paragraphs [0009], [0049], [0050]).

As per claim 17, Reynolds discloses a non-transitory computer-readable storage medium having stored therein instructions which, when executed by a processor, cause the processor to perform operations comprising: receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items (a content provider employs a framework definition to specify (request) and deliver a package of related content streams (multimedia items), providing information necessary to build, format, transmit and display the cable broadcast content (for playback on a broadcast media channel); abstract; paragraphs [0013], [0020]); obtaining content corresponding to the plurality of multimedia items from at least one website offering the content in at least one first format (interactive HTML (first format) content is associated with various video streams (plurality of multimedia items), where the HTML content and streams are provided via a corresponding URL; paragraphs [0022]-[0024], [0057]); generating each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is compatible with the at least one content provider (video, audio assets and HTML metadata obtained via URL's (based on the content obtained from the at least one website) are packaged into a format (second format) that is compatible with the delivery system (provider) to prepare the video for compliant transport via an MPEG transport format; paragraphs [0048]-[0050], [0057]); assembling the at least one media stream using each of the plurality of multimedia items generated (video, audio assets and HTML metadata obtained via URL's are packaged (assembling) into a format (using each of the plurality of multimedia items generated) that is compatible with the delivery system to prepare the video for compliant transport via an MPEG transport format; paragraphs [0048]-[0050], [0057]); and providing the at least one media stream to the content provider for broadcast on the broadcast media channel (the framework controller formats and organize media components into streams that are provided to the delivery system to be delivered by the delivery system, using a transmission apparatus such as employed by cable and satellite broadcast systems; paragraphs [0045], [0053], [0054]).

As per claim 18, Reynolds discloses the non-transitory computer-readable storage medium of claim 17. Additionally, Reynolds discloses, wherein the obtaining comprises retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item (metadata may comprise graphics data, sound data (audio file), HTML data such as interactive HTML pages (screen captures) associated with matches being broadcasted via video feed and video data, the metadata being time synchronized to content such as an audio track or be content related; paragraphs [0022]-[0024], [0028], [0048]); and wherein the generating comprises combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items (multiple media and metadata streams having content such as audio data and interactive HTML pages are combined into a framework for distribution of the content (multimedia items) to a viewer; paragraphs [0010], [0022]-[0024], [0048]).

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US15/67464

Supplemental Box

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As per claim 21, Reynolds discloses the non-transitory computer-readable storage medium of claim 17. Additionally, Reynolds discloses, wherein assembling the at least one media stream comprises inserting at least one MPEG packet including metadata corresponding to the multimedia item (metadata packaging may comprise packetization, serialization, and synchronization to video and/or audio streams, where the metadata is prepared for transport across any compliant transport mechanism such as MPEG; paragraph [0050]).

Claim 5 lacks an inventive step under PCT Article 33(3) as being obvious over Reynolds in view of US 2009/0178003 A1 (FIEDLER).

As per claim 5, Reynolds discloses the method of claim 4. Reynolds does not disclose, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of a song title, an artist, and a music genre. However, Fiedler discloses, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of a song title, an artist, and a music genre (playlists (screen captures comprises metadata) are assembled and broadcasted via webcasting of such presented content by broadcasters; abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Reynolds to provide metadata corresponding to a song title, an artist, and/or a music genre, as taught by Fiedler, in order to provide content formatting and assembly capabilities for distributing musical content.

Claim 11 lacks an inventive step under PCT Article 33(3) as being obvious over Reynolds in view of US 2008/0040354 A1 to RAY et al. (hereinafter "Ray").

As per claim 11, Reynolds discloses the method of claim 1. Additionally, Reynolds discloses, further comprising: providing at least one server for performing the receiving, obtaining, generating, assembling, and providing (a content provider, using the framework controller (server), employs a framework definition to specify (providing) and deliver a package (assembling) of related content streams (receiving), providing information (obtaining) necessary to build, format (generating), transmit and display the cable broadcasted content; abstract; paragraphs [0013], [0020], [0045], [0053]). Reynolds does not disclose, further comprising, provisioning, on at the least one server, at least one virtual machine. However, Ray discloses, further comprising, provisioning, on at the least one server, at least one virtual machine (a content provider server suitable for use in a content delivery system comprises processing logic that further comprises a virtual machine; paragraph [0099]). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Reynolds to provide at least one virtual machine on the least one server, as taught by Ray, in order to provide content formatting and assembly capabilities in a virtualized environment.

Claim 19 lacks an inventive step under PCT Article 33(3) as being obvious over Reynolds in view of US 2014/0068690 A1 to LUTHRA et al. (hereinafter "Luthra").

As per claim 19, Reynolds discloses the non-transitory computer-readable storage medium of claim 17. Reynolds does not disclose, wherein the at least one media stream corresponds to at least one of an HTTP live stream (HLS), an HTTP playlist, and a Real-time Streaming Transport (RTSP) stream. However, Luthra discloses, wherein the at least one media stream corresponds to at least one of an HTTP live stream (HLS), an HTTP playlist, and a Real-time Streaming Transport (RTSP) stream (the client converter can be implemented as an interface for HTTP Live Streaming client devices that receive HLS compliant bit streams; paragraph [0013]). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the storage medium of Reynolds to provide a media stream corresponding to at least one of an HTTP live stream, an HTTP playlist, and a Real-time Streaming Transport stream, as taught by Luthra, in order to provide content formatting and stream assembly capabilities to support various types of content format and transport protocols.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US15/67464

Supplemental Box

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Claim 20 lacks an inventive step under PCT Article 33(3) as being obvious over Reynolds in view of US 2014/0143437 A1 to ADOBE SYSTEMS INCORPORATED (hereinafter "Adobe").

As per claim 20, Reynolds discloses the non-transitory computer-readable storage medium of claim 17. Reynolds does not disclose, storing additional instructions which, when executed by the processor, result in operations comprising: detect a network failure affecting connectivity with the at least one website; and in response, provide a previously recorded media stream to the content provider. However, Adobe discloses, storing additional instructions which, when executed by the processor, result in operations comprising: detect a network failure affecting connectivity with the at least one website (the stream conversion application (content provider) can retrieve at least some of the content segments from a failover source for the live stream, where a live stream can be provided from more than one server system to allow the live stream to be continuously published or otherwise provided using stored VoD streaming content in the event that one of the server systems experiences a failure, such as a loss of network connectivity for a web session; paragraphs [0030], [0043], [0065]); and in response, provide a previously recorded media stream to the content provider (the stream conversion application (content provider) can retrieve at least some of the content segments from a failover source for the live stream, where a live stream can be provided from more than one server system to allow the live stream to be continuously published or otherwise provided using stored VoD streaming content in the event that one of the server systems experiences a failure, such as a loss of network connectivity for a web session; paragraphs [0030], [0043], [0065]). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the storage medium of Reynolds to provide streaming of pre-recorded content as a result of network failure detection that affects connectivity with a website, as taught by Adobe, in order to provide backup content stream capabilities.

Claims 1-11 and 17-21 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

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APPLICATION NUMBER: 62/095,504

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METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS

1. FIELD OF THE DISCLOSURE

The present disclosure provides for a mechanism used for delivering audio/video data from a cloud-based system to a cable or satellite platform head ends using MPEG-TS standards as well as Internet Protocol Television (IPTV) service systems.

The disclosure describes a novel method and a system for continuous media delivery and secured synchronization of multimedia files that are broadcasted to set top boxes or subscriber units in the field that are connected to IPTV or Cable Systems. The invention securely connects to a cloud-based platform (e.g. OpenStack, Amazon EC2, Mediampify Cloud, etc.), creates a set of multimedia files (e.g. MPEG4 movies) into a secured repository (e.g. Secured File System, Linux/Windows, etc.), modifies those files according to certain rules as defined by the method herein, and reproduces those signals via a multicast video stream (e.g. User Datagram Protocol (UDP) multicast, etc.) encapsulated in a Transport Stream (TS) frame that can be a multiple transport stream (several transports in one TS frame) or a single transport stream (one transport stream according to the MPEG-2 Part 1 Specification or similar multimedia streaming that is compatible with MPEG-TS at a predetermined rate or at a variable bit rate).

2. BACKGROUND

Currently, Cable operators, Multiple System Operators (MSO), and Digital Satellite Systems (DSS) use methods for media delivery based completely in satellite technologies, RF (Radio Frequency) and IRD (Integrated Receiver and Decoder) with outputs that include ASI (Asynchronous Serial Interface). Additionally, MSOs and DSSs use dedicated hardware encoders, and in general transcoding systems if the source

video/audio is incompatible with the set top boxes of the cable or satellite operator. In general, the video/audio content delivered via the satellite arrives via wireless link or receiver, which is later on received by an IRD (Integrated Receiver/Decoder) that will receive the stream from the satellite and ultimately broadcast that signal to the cable operator head end in several formats.

Some systems may include multicast units connected with IRDs that tune to the right transponder system.

Satellite systems are used to deliver from a particular source of data, TV, Radio, Video-on-Demand, and streams of multimedia to cable head end systems or other satellite systems. Satellite delivery is performed via a broadcast signal containing digital pictures and audio inside a transponder frequency. Transponders are radio frequency (RF) space allocated in a particular satellite.

The playback mechanism consists in keep CD/DVDs of multimedia files, pre-recorded storage, or pre-recorded files that are reproduced in a particular audio or video encoding format using a video or audio encoder (e.g. MP3, H.264, AC3, and others). The audio and video is then made part of an RF signal that is broadcasted to the satellite system. This signal is then received by an antenna receptor and once decoded with the same method of encoding of the origin is either generated in analog mode (e.g. RCA Cables or any other analog interface) or digital mode (e.g. ASI, Asynchronous Serial Interface). If analog signal is received, modern DVB (Digital Video Broadcasting) Cable and Satellite systems will encode this signal to their particular video/audio encoding requirements and later broadcasted in digital packets via a multicast MPEG Transport Stream. The same occurs a receiver decodes the signal in ASI, as such this signal is converted from ASI to Ethernet, or simply redirected to a multicast MPEG Transport stream if arriving in a compatible encoding format for the receiving head end cable system.

When no satellite is being used, video, pictures and music, are read out from the DVD or a hard-drive containing MPEG-layer 3 or MPEG-layer 2 files that were encoded

at a pre-determined bit rate according. Those video feeds can be reproduced at a synchronized timing using a multicast MPEG Transport Stream using RTP (Real-time Transport Protocol)-based multicast communication and RTCP (RTP Control Protocol)-based mechanisms, as well as standard UDP (User Datagram Protocol) multicast streams with proprietary timing.

Additionally, IPTV systems can provide mechanisms to broadcast a signal using the multicast protocol in MPEG transport streams to a customer premises with compatible set top boxes (same encoder, same streams, encryption keys, etc). A compatible set top box is such that when connected to the cable TV system it can properly decode video/audio from the cable operators's head end system. Some of these IPTV systems rely on CDN (Content Delivery Networks) that enable distribution of multimedia files to IP-enabled devices.. For example, a mechanism can be provided whereby a head end content (MSO) that is being broadcasted to a cable subscriber is also available to an IP-enabled device such as a smartphone, PC, or tablet computer.

Summary of the Disclosure

A system, apparatus and a method is disclosed for media delivery from a cloud or IP-based distribution network, or CDN (Content Delivery Network) to MSO (Multiple System Operators) or head-ends that include cable and satellite delivery mechanisms. This invention unifies cloud-based delivery (Mediamplify cloud) with the cable-based mechanism (e.g. Comcast, Verizon FiOS).

In a first aspect of the disclosure, a system and method for delivery of media content for music is described. The main embodiment of this can consist in three elements, storage and multicasting servers. These three elements can be virtualized reusing the same methods described herein.

The second aspect of the disclosure is related to the different methods that are used to encode and transcode customizable content added real-time to the broadcasted stream, calling a main component “Mediamplify Parallel Encoder”.

The customizable content can reside in an HTML5 or web service, which is retrievable, preferably using HTTP (Hyper Text Transport Protocol) or HTTPS (Secured Hyper Text Transport Protocol). The content rendered is converted into a video feed that is overlapped or multiplexed with the content about to be broadcasted to the MSO or head end in the cable system.

The third aspect of the disclosure corresponds to the methods used to multicast and deliver generated content (e.g. video feeds or audio feeds) to a cable operator network where multiple head ends are connected and stored.

The fourth aspect of the disclosure shows the preferred architecture of components and the system whereby the methods are implemented and multimedia delivery can be performed securely and fault-tolerant fashion.

BRIEF DESCRIPTION OF THE DRAWING

There are shown in the drawings, embodiments which are presently preferred, it being understood, however, that the disclosure is not limited to the precise arrangements and instrumentalities shown

FIG-1 Functional block diagram illustrating an exemplary head end (MSO).

FIG-2 Functional block diagram of the apparatus located at the MSO facility (mediaplug) connected to the Mediamplify cloud.

FIG-3 Methods for initialization of Mediaplug components (caching, multicast-01, and multicast-02)

FIG-4 Method to obtain list of files to multicast to a cable operator MSO

FIG-5 Method for encoding video and audio files depending on customization screen at Caching unit part of the Mediaplug

FIG-6 Block Diagram for Software components of the Mediaplug: Caching, Multicast-01, and Multicast-02

FIG-7 Method to multicast from a caching component in the Mediaplug using HLS (HTTP Live Streaming), Playlist, and Fault-tolerance

FIG-8 Method to Insert Metadata into MPEG Transport Stream

FIG-9 Block Diagram for a Virtualized Mediaplug

FIG-10 Method to initialize virtual mediaplug components

While the invention is amenable to various modifications and alternative forms, specifics thereof have been shown by way of example in the drawings and will be described in detail. It should be understood, however, that the intention is not to limit the invention to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention.

DETAILED DESCRIPTION

The following description should be read with reference of the drawings, in which like elements are numbered in similar fashion. The drawings are not necessarily at scale and are not intended to limit the scope of the invention or disclosure. Those skilled in the art understand that there are alternatives that may be used as well which are also considered to be within the scope of the disclosure.

Generally, the disclosed embodiment pertains to the delivery mechanism for cable systems without the need of a satellite system in a fault-tolerant and reliable fashion. FIG. 1 presents a block diagram whereby the “Mediamplify Cloud” **101** refers to a set of

virtualized instances or non-virtualized instances of several servers that contain programs providing access to archives and digital files with media content stored in them. As non-limiting examples, the “Mediamplify cloud” can be implemented using VMWave or Xen and OpenStack, or simply reside in Amazon Web Services or Rackspace. Special provisioning can be provided in Mediamplify Cloud for secured access. Additional details for this cloud are not considered necessary for an understanding of the current disclosure.

The “Mediamplify Cloud” service files are accessible via the internet **105** and are stored in a cloud-based file system or cluster file system (e.g. GlusterFS or Hadoop, Amazon S3). These files can be multimedia files that include as non-limiting examples MPEG-4 Video files with H.264 encoded video and AAC encoded audio or MPEG-layer 3 audio as well (MPEG2 Video could also be used). These files are accessible using a secured transport protocol such as, but not limited to, SSL or a synchronization tool as “rsync,” commonly found in Linux/MacOS environments. The communication link **106** can be a DSL, Cable Modem, Wireless WAN, Fiber, Metro Ethernet, etc. and can be linked with the “MediaPlug” **110** unit. This Mediaplug resides at the “MSO” facility and is collocated with all the cable or satellite operator equipment. The MSO is a facility used by the Cable Operator to receive all TV and Radio Programming that the cable operator will then multiplex, re-encode, and distribute from the MSO to a set of subscriber units with set top boxes, or modulate the signal in TV analog channels (2-60+).

The main objective of the “MediaPlug” is to provide multimedia content, video and audio, to one of the main MPEG multiplexer at the headend **120**. The content can be pre-formatted in MPEG Transport Streams that the multiplexer (e.g. Arris TMX-2010) will then be able to capture, reformat in any way the operator requires, and deliver to the cable operator’s subscribers via Coaxial Cable **125** or any other means suitable for a multicast or unicast delivery to its customers with “Set Top boxes” **130, 131, 132**. A “Set Top Box” is a customer premise equipment that will be able to decode and display in a TV set or other

screen display, via its HDMI or Analog input, the contents of the TV programming the cable operator offers.

The unit described as Mediaplug can be a computer or server (e.g. Dual core processor with 16G of RAM), or set of computers or servers that can communicate with the Mediamplify Cloud using a standard Local Area Network (e.g. Gigabit Ethernet). The Mediaplug can store, encode, and transmit multimedia files in the format that the cable operator at its MSO requires. This cable format may include audio, video, and metadata (subtitles, control data, and any additional component that can be packaged in an MPEG Packet that is part of the MPEG Transport Stream). In general the building blocks of a Mediaplug can be a caching unit, and two multicasting servers.

FIG-2 illustrates the hardware components of a Mediaplug with three physical servers. A server is a computer device, usually rack mountable unit with 4 to 8 GB of RAM, a dual-core processor over 2GHz, and sufficient storage (over 1TB) hard disk space. However, anyone skilled in the art would know that this can be varied according to different specifications. The figure depicts in **202**, the Mediamplify Cloud which is connected to the Internet backbone **203** and as a consequence **204** via DSL, Cable Modem, or Fiber, a Network Address Translator unit (e.g. Cisco RVS4000, or any other NAT device) **205** with some Gigabit Ethernet switching capabilities. The lines **206**, **207**, and **208** show Gigabit Ethernet links, however one skilled in the art understand that Gigabit Ethernet or a Wireless LAN using 802.11g/n would be also a suitable interface to be used in the Mediaplug configuration. The Caching unit **210** can be the main storage component in the system and it can contain all of the multimedia files in the format required by the cable operators, with the Transport Stream format the most common. The caching unit services Multicast-01 **215** and Multicast-02 **220**. These two units pull information from the caching unit via TCP/IP or UDP, using protocols such as HTTP (Hypertext Transport Protocol) or RTSP (Real-time Streaming Transport). The caching unit also encodes and transcodes the multimedia files it can download from the Mediamplify Cloud. The caching unit also keeps updated

information of all the metadata and creates customizable screens that are converted into video formats compatible with the Transport Stream content that will be provided to the cable operator at its MSO. Hence, MPEG MUX MSO **230** corresponds to a digital program residing in a computer system that will process and handle all the MPEG streams from all sources and functions as the bridge between the source of the signal and the customer's set top box units. A non-limiting example program would be the CherryPicker DM6400 by Motorola.

Each of the building blocks of the Mediaplugin includes software methods and processes that are described as follows. First, FIG-3 depicts the method used to configure and provision the units at boot-time. Each unit can use IPsec and SSH Tunnel keys that can be stored in the administrator user account **305**. The keys can be generated by the Mediaplugin Cloud and are hence private keys or certificates, shared secrets or similar components by which the Mediaplugin will connect securely with the Mediaplugin cloud. Likewise, each Cable Operator will provide custom-based IP Addressing for the Gigabit Ethernet ports that connect to the operators' network. For that effect, changing the IP Addresses of the Multicast-01 and Multicast-02 refers to the IP Address by which the links **221** and **216** in FIG 2 are linked to the MPEG MUX MSO unit. This change on IP Address refers to the ifconfig command, commonly used in Linux-based systems and that can be changed in an Ubuntu box at /etc/network/interfaces file. Similarly, the network routing may have to be changed as well if the multicast address cannot be routed to the default gateway which points to the **205** NAT, but to **221** and **216** respectively for Multicast-02 and Multicast-01. In general, the 239.*.* network may be routed to those interfaces.

In some configurations a customizable user interface (UI) can be added to the output video MPEG Transport stream. As such, if the "Custom UI" variable is then true and valid, **325**, a link or URL is loaded in to the Mediaplugin configuration for that to be used when that video interface is created in real-time for a particular channel or for all the channels. This variable can be unique per channel configured in the Mediaplugin apparatus. Likewise, monitoring of all processes and their stability is quite important for continuous

operation due to Cable TV requirements. Monitor any other suitable monitoring tool **340** can be used for that purpose.

In normal operation, the Mediaplug will broadcast the multimedia MPEG stream using the programmed IP Address in multicast-01 and multicast-02 preferably using the method shown in FIG-3. Depending on the type requested by the multicasting embodiment, either multicast-01 or multicast-02, those types can be Transport Stream (e.g. TS) and/or MPEG-4 Part 14 (e.g. MP4) values. **405**. This request is executed from any of the multicasting embodiments, usually making use of the HTTP GET Request. The multicasting unit connects to the caching's HTTP Server and retrieves the list of files based on the type selected by the request. As the caching unit may hold multiple channels of different types and name, each channel has a unique identifier, the name of the playlist, for example channel name "Cool" or "Rock," **410** these names identify the channel to be retrieved from the caching server. The activity log in the requester is also updated keeping track what step of the process is being completed. **415**. The caching server generates a "playlist file" of mime type "audio/x-mpegurl" which will be interpreted as a multimedia playlist file when requested. Finally, as the playlist usually will not vary for a while, the playlist can be kept in the local memory caching service **420**.

As these requests arrive to the "Caching" embodiment from the multicasting units, the "Caching" unit is operating encoding in parallel all the different channels available from the unit. FIG-5 illustrates the method followed by the "Caching" embodiment. As a first step, the attached encoders in the current implementation are FFMPEG custom-based and compiled with a few modifications. As such, **505** presents a challenge to enter the proper parameters required for a music video. For example, GOP (Group of Pictures) which is used by certain video encoders, resolution (e.g. 640x480) in pixels, bit rate in Kilobits per second, any encoding type of video (e.g. H.264), encoding type of audio (e.g. AC-3), duration of the video feed, among others. In **405**, the parameter called "format" refers to the output format or encapsulation, MPEG TS or MPEG4. The caching unit encodes audio and video, and can use the disk space in the Mediaplug. Hence in **410** the method checks for

sufficient space left in hard drive. This task is run on a thread together with all the several other tasks that are in conjunction working in parallel and speed up the processes of encoding and transcoding.

Several indexes or identifiers by the name "ChID," (these integers preferably no more than an integer value from 1 to the Maximum number of channels) begin (e.g. MAX could be 50) to be generated by the caching unit **510**. This method goes across all the channels and all media linked to that particular channel identified by "MediaID" **515**, in this particular case the "MediaID." The variable "MAX" in this context refers to the maximum number of media files read (e.g. 500). The data captured from the media could be "Artist," "Author," or any other variable from an audio file. If a video file is used this could be "program name," "movie name," or any associated metadata information tied to the multimedia file and the Channel Identifier (ChID) associated with it "MediaID" file.

The caching unit can add a "Custom UI," or a customizable User Interface that is designed using Hypertext Markup Language (e.g. HTML) or a web service. A web service that matches a REST interface (Representation State Transfer) and uses Javascript Object Notation (JSON) or XML (Extensible Markup Language) to respond to a custom UI request can be used. Moreover, this custom UI can include JavaScript, CSS, and HTML content files that can be rendered using a browser using WebKit (e.g. PhantomJS or Safari) or any other browser-rendering engine compatible with HTML4/5 or any future HTML version. If a customizable UI is part of the configuration **518**, then rendered images from images from a web service can be used to create overlapping video or replace any video in the video feed file. Likewise, this video or customized screen can be used when no video at all is defined in the multimedia file, e.g. Audio-only file. The web-service to be contacted may use the "PlaylistName" to be used for the Channel identified by the channel ID "ChID," retrieved using the "PlaylistID" function **520**. Each new PlaylistName may contain different identifies to retrieve new images. Therefore one or more screens will be retrieved from the rendering engine as such **522** can be used to retrieve a set of screens from the web-service being contacted.

Capturing screens can be done using a tool similar to PhantomJS (Webkit-based headless engine for rendering images) or QtCapture, or simply capturing screen frame buffers from a machine running any software tool. Another option shown in the method is the inference to capture a video file from another rendering function, which can create a sequence of screens that can be used to generate a video file. Once all screens and video are captured, **530** the resulting output created can be a video file that then is either replaced or merged (multiplexed) with the original file. As an example if an audio content file is used, let's say an MP3 file. This function will create a video file from all the screens captured by **526**. Those screens are generated by calling a URL where the web-service is associated and creating a video file with the input audio and the captured screens. The output format can be an MPEG Transport Stream file that can be retrievable or streamed to the multicasting embodiment.

Once the output file containing the screen shoot sequence of videos encoded in H.264 (for example, or MPEG2Video) is created, the audio can be multiplexed and added to one of the encoding channels of the resulting video output and saved into the caching unit storage disk **550**. The multiplexing can be done using FFMPEG or VLC or any proprietary tool that can multiplex audio and video files into a resulting MPEG Transport Stream (or MPEG-4 output, or any similar output).

FIG-6 depicts a block diagram of a preferred architecture of the Caching Unit components and how are they tied to the methods herein. The design shows **620** as the main operating system, Linux, but it can be also Windows or any other operating system in use. The caching unit can contain two types of operating system services HTTP **610** and RTSP **612**. The RTSP service provides access so the media saved or created in the repository of the caching unit file system **630**. The RTSP server can be implemented using the Live555 RTSP server or similar. On the other hand the HTTP Server can be implemented using "nginx" or "apache" web browsers, and the RTSP Servers can be implemented using

Live555 services. In the case of the HTTP Server, this can also be used to get the Playlist of files generated from the method on FIG-5 **615**.

The GetPlaylist **615** command can be generated as follows:

- Receives and process a request for the name of the channel or playlist to be used,
- Retrieves all the filenames ordered by date of creation of all the files in a particular directory,
- Caches all the files into cache memory (e.g. Memcache or similar tool),
- Adds type of HTTP header as M3U or PLS (e.g. a text file with a list of files or URLs to play),
- Returns a list of HTTP or RTSP urls to access each video generated or stored in the caching unit.

The same HTTP Server can also be used to clean up, update, and delete operations **622**, the block unit called “CleanUp” is in charge of keeping up to date caching information data or deleting files already used or that are not required to be used anymore by the multicast unit(s). Also the HTTP Server functions includes servicing M3U8 files corresponding to the HTTP Live Streaming format and all the segments created by the HTTP Live Streaming function (as defined in IETF document draft-pantos-http-live-streaming-13). By such, a HTTP Live Streaming (HLS) generation program will produce the files and segment them as needed by the encoder and can then be serviced by the **610**. The Mediamplify Parallel Encoder **605** is the block function that implements the methods shown in FIG 5. The resulting outputs from the “Media Parallel Encoder” are stored in the file system **630**. The “Mediamplify Parallel encoder” can be implemented in Python and relies on web services (such as Twisted or Django), PhantomJS, and FFmpeg. Monit **650** ensures that the process running the “Media Parallel encoder” keeps running at all times and does not stop upon failure. Another block diagram that ensures synchronization and updates of new media files coming from the cloud are RSYNC **642** and SSH **644**. The RSYNC block uses the “rsync” protocol and program over ssh (Secured Socket Layer Shell) to download media from the “Mediamplify Cloud” and synchronize multimedia files that are

newly updated and could be part of particular Channel ID and a Playlist Name. Each new file synchronized with the Mediamply cloud has a Media ID value which the cloud, can assign, and include additional metadata information such as "Artist" and "Author." The "Mediamply Parallel Encoder" also may receive requests from other components such as getStatus or StartEncoding, indicating what file is being encoded, its progress, and what other files are in the queue for encoding.

The information from getStatus or StartEncoding can be generated using a JSON message retrieved upon a request via HTTP GET to the Mediamply Parallel Encoder. A graphical user interface can then be used to plot the status of each song being encoded or provide previews of the videos being generated.

As a non-limiting example of a JSON response made by the "Mediamply Parallel Encoder" service:

```
{ "song_encoded" : "ts", "artist": "Madonna", "duration": 0, "exists_on_disk": True,
  "genre": "Pop", "title": "Like a Virgin", "music_id": "1082863" }
```

or status for a song being encoded or a list of songs being encoded, as follows:

```
{ "music_id": "109281", "encoding": "78%", "output_file":
  "/var/www/eglacast/pop/109281-abcdef-uuid.ts", "thumbnail":
  http://mediamply.com/images/abcdef-uuid.png }
```

In essence, there are preferably two possible TCP/IP sockets open for listening used by the Caching component of the Mediaplug. A) Port 80 (as an example), or the standard HTTP port, used to retrieve content, view video content generated, update/delete cached files, and access the playlists, and B) Port 9553 (as an example), or the standard Mediamply Parallel encoder port, used to monitor and review status of the songs being encoded, the data being collected, and all other related activities with encoding. Via this port, encoding/transcoding can be started or stopped.

In a very similar fashion, the “Mediaplug” components labeled “Multicast-01” and “Multicast-02” also provide an HTTP interface to access the current song being played or being multicast via the HTTP Server 670, the HTTP Server may run a PHP or Python script that will return the current song being played by the streamer. The streamer block 668 can connect to the caching server via HTTP or RTSP protocols. The practical implementation of this block can be done using a combination of FIG-7 instructions and using multicasting services present in VLC or FFMPEG already (e.g. multicast, or tsools / tsplay).

The main function of the streamer 668 is to read the files encoded by the caching unit, process those for multicasting and creating the MPEG Transport Stream multicast packets sent via the Ethernet port. Additionally, the multicast-01 and multicast-02 blocks contain a “Recording” function 690, which is in charge of recording the multicasting streams and recording for later use in case of failure on the system. This operates by listening into the UDP (User Datagram Protocol) multicast address of each individual channels being broadcasted, and recording the output into a file. This file is then stored and made accessible for future use. Monit 664 is in charge of keeping the streamer process running at all times throughout a regular broadcasting cycle.

The preferred method utilized by the streamer is shown in FIG-7. In this chart the streamer will perform the following functions:

- Connect to the caching unit
- Retrieve generated videos per playlist
- Determine if it is working in fault-tolerant mode or, playback a pre-recorded audio if it detects failure,
- Playback audio if the other multicast unit is in failure more,
- Record itself or any other streamer output if connected to a switch or hub

As a first step, the streamer reads the multicast address it’s associated to the channel being broadcasted 705, in order to generate IGMP (Internet Group Management Protocol) messages and establish a multicast group (e.g. 239.0.0.1:8001). The channel name

is also initialized **710**. This value is provided to retrieve the proper content from the Caching server. Usually a configuration table can be created with tuples: <ChID>, <Channel Name>, <Multicast Address>, <Multicast Port>, such that no duplicates are used or created. Automation software can create these configuration tables and automate the process of creating all streamer calls. A streamer method can be called from /etc/init.d/ at boot time and monitored with a tool such as Monit. Once configuration is known, the streamer will check if there are already multicasting transport streams generated by any other multicast component and avoid collisions. If such a multicast data is detected, a delay of 60 to 120 seconds could be used to delay a new attempt to check on that particular multicast group **760**. Hence this block indicates “Wait <Time>” or stop all processing for the amount of <Time> recommended by the specification. A preferred rule of thumb is to use as “Main source” of input less amount of time than a backup server. In that way, during initialization, if the same multicast address is used to broadcast main and backup, then the one with less amount of time delay will be first, followed by the “Backup.” In cases where a hot spare is used, or two different multicast addresses can be in use, one for main and the other one for backup. There is no need to perform this step.

Once it has been established that there are no elements multicasting at the same address, the streamer will check if the Caching server is “alive” **715**. This step can be performed in multiple ways, the simplest being that an HTTP Request must not generate a 404 or 403 error, for example, but instead a successful 202 value. Likewise, ping requests can also be used first before making an HTTP GET call to identify if the caching server is present and available. In case that there are no ping responses, a timeout will trigger a failure and a pre-recorded content **720** will be played or sent to the multicast address and port of record. Recordings can be scheduled daily for 8 hours or more. These recordings can store the recorded file in a temporary folder and then move that file over to the playback folder where streamer can read that.

If the caching server is “alive” and well, then there are three types of streams that can be sent to the multicast address and port:

- HTTP Live Streaming (HLS) a multi-segment stream usually defined by extension M3U8, containing a set number of segments for a real-time stream source (Video/audio)
- HTTP/RTSP file playlist, this means that one or many files are read from the caching server, usually defined by extension M3U or PLS
- RTSP stream, this could be constant stream similar to HTTP Live Streaming but using an RTSP protocol instead of HLS stream.

In the event that multiple files are part of a playlist, the bit-rate may drop between playlist files. This could cause problems in non-CBR (Constant Bit Rate) systems. The solution is maintaining the stream at the bit rate of the previous stream and adding null MPEG TS packets at the same rate as the previous media file was being sent over the multicast port. This will maintain appropriate bit-rate for playlists. In cases where HLS or RTSP streaming is used, this may not be an issue.

There are several methods that can be used to determine which file is being currently played depending on the methods used for streaming. When the file is being streamed using HLS or RTSP, only the server knows what file is currently being used.

In RTSP service, streaming occurs by writing the media content to a named pipe or a FIFO file and allowing the RTSP service to read from that file at the same time generate an RTSP stream. As such in HLS and RTSP Streaming, the caching server knows the filename of the file being streamed. When the file is streamed from via playlist, both the caching and multicast unit know the name of the file being streamed, as the multicast server can then request from the caching server the metadata associated with the file name being streamed.

Accordingly a simple method should accommodate to both cases and retrieve the current file name being streamed as a JSON response. This should match with the content displayed at the end-user's set top box, and maybe needed only for testing and development purposes.

Hence, if HLS is used for streaming **718** the streamer will connect to the proper M3U8 file to pull all the segments corresponding to the live playlist file on the M3U8

stream. Programs and libraries such as FFMPEG or VLC can then be used to encapsulate the stream feed to an MPEG TS and multicast it to the pre-programmed multicast address and port. In a very similar fashion, if an RTSP stream **725** is used, the same process takes place; the only difference is the use of RTSP as a protocol instead of HTTP.

If on the other hand a list of files in a playlist **732** is in use “M3U,” this list is available via an HTTP GET request made to the caching server, GetPlaylist **615** web-service.

Each file is then streamed to the multicast address and port of record **738** until all elements of the playlist are completed and played back **735**.

In some instances, metadata needs to be added to the stream as an additional PID (Program Identifier) in the MPEG Transport Stream. If metadata is needed **741** then it will be inserted here just as described in the method depicted in FIG-8.

The metadata added could be as simple as a string containing Artist, Name, or other information, or as complex as DCII Text (DigiCipher version 2, as specified by Motorola), MPEG TS Control messages (Two-way), or any other metadata or PID that needs to be inserted into the stream being sent to the multicast address and port.

FIG-8 depicts the method used to insert a special packet into the stream being written to the multicast address, without making use of timing information. Therefore, the metadata has no timing dependency in this method. However Subtitles may need to be inserted only at certain times, as the video requires. The same method applies for lyrics or any other metadata being inserted into the stream.

The sample MPEG TS packet shown in **802** and **805** will be the metadata inside the packet. This matches standard MPEG TS packet structure and may vary depending on the type of metadata being added to the stream.

The method to insert this packet starts by reading the MPEG TS file retrieved from the caching server **810**. If metadata corresponds to only song information, this information can be added at uniform times. Non-uniform timing inclusions can also be done by adding a table that includes the time and the metadata content added to the stream

815. This metadata can be retrieved from the Caching unit using an HTTP Get request directed to the caching server **818** and may include artist name, title of song, or any other information **820**.

Creation of the MPEG Packet (s) **825** to be inserted at the appropriate times, which will set the places with those packets, will be inserted in the MPEG TS. Modify the PMT (Program Management Table) of the generated file and include the PID being inserted into the MPEG TS **830**. In **832**, an audio PID may include also a metadata PID of type DCII Text, which is added to the stream.

Finally, for each timing or location where the PID needs to be inserted **835**, proceed to insert those packets and generate a buffer that will be later on sent to the multicast address as in illustrated in FIG-7.

These set of methods can be part of the Mediaplug apparatus and could be implemented using one or more servers accordingly. However, the proliferation of virtualization environments such as VMWare or Xen (FIG-9) can include a system and architecture to host all the Mediaplug functionality in a virtualized environment as Xen using a single server with three GbE ports.

The illustration shows that a preferred minimum of three virtual machines can be used for the setup. Caching **930** and its respective Ethernet port **932**, Multicast-01 **920** with two virtual Ethernet ports **922** and **924**, and Multicast-02 **910**, with two Ethernet ports **912** and **914**. There are three bridges that include **907**, **909**, and **908**. The multicast Ethernet ports in **924** and **914** are bridged with eth1 **904** and eth2 **903** respectively. In other words, the same content generated at **924** is forwarded via the bridge to the physical interface eth1 in the hardware. The vSwitch **945** or the virtual switch between the two bridged interfaces permits the two virtual machines of Multicast-01 **910** and Multicast-02 **920** to be able to record each other and monitor their activity as indicated in the methods shown in FIG-6.

In the hardware version shown in FIG-2, the IP Addressing can be assigned by the system. Likewise, routing on FIG-2 can be clearly be shown to be routed as depicted in

the figure for instance all multicast traffic might exit a second Ethernet interface while the first interface is used to connect to the caching unit.

However, this becomes an issue as FIG-9 as several multicasting or caching instances might be concurrently executing and running as part of this process. In order to achieve concurrency and execution in a cloud environment, the Mediaplify can use of the method shown in FIG-10. For such, once a create unit command is issued **1005** provisioning of the metadata information and proper IP Address is provided for that particular instance **1010**. Once an IP Address and metadata has been chosen for the unit, the server can be allocated in the cloud and the instance can be s created using CloudStack or OpenStack tools and services **1015**. The instance is then allocated and runs in the proper node in the cloud **1020**. Configuration of the assigned IP, Netmask, and VPN credentials are loaded **1025**. Finally, certificate information is uploaded **1030** as well as all services run to enable the unit for execution of its caching functions, multicasting functions, or both.

ABSTRACT

A method, system, and apparatus is disclosed to deliver and playback media in the cloud in such way that the media will play continuously in a cable operator system as well as on smartphones, tablets computers, and PCs. Mechanisms are disclosed to synchronize media delivery to a cloud-based system, enable fault-tolerant and secure media encoding of audio and video data as well as injecting metadata as part of the video stream (e.g. encoded in H.264) or in the transport stream (as a Program Stream with a Program Identifier)

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Document Description: Provisional Cover Sheet (SB16)

PTO/SB/16 (11-08)

Approved for use through 05/31/2015. OMB 0651-0032

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Provisional Application for Patent Cover Sheet

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)

Inventor(s)

Inventor 1

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Given Name	Middle Name	Family Name	City	State	Country
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All Inventors Must Be Listed – Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.

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Title of Invention METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS

Attorney Docket Number (if applicable) 1459.8002

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Direct all correspondence to (select one):

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Customer Number 44538

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

- ☒ No.
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Signature	/Daniel S. Polley/			Date (YYYY-MM-DD)	2014-12-22
First Name	Daniel S.	Last Name	Polley	Registration Number (If appropriate)	34902

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EFS ID:	21039749
Application Number:	62095504
International Application Number:	
Confirmation Number:	4223
Title of Invention:	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
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Attorney Docket Number:	1459.8002
Receipt Date:	22-DEC-2014
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Application Type:	Provisional

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			3e28d6cd012d3e60ba0580434a1ff65fa3460a5e		
Warnings:					
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2	Drawings-only black and white line drawings	8002-Provisional-Figures.pdf	982250	no	7
			12b957da66d71352b0f7a9a6e3517d64b6e2181a		
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3	Application Data Sheet	8002-DataSheet.pdf	1894651	no	7
			ca7cc42d1e17c8d90d9e294fc90cc20a71c139d9		
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5	Fee Worksheet (SB06)	fee-info.pdf	30224	no	2
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1459.8002
		Application Number	
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		
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.			

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Title of the Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		
Attorney Docket Number	1459.8002	Small Entity Status Claimed	☒
Application Type	Provisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	Suggested Figure for Publication (if any)	1

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1459.8002
		Application Number	
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		

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Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

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Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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 blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			
Add			

Foreign Priority Information:

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	1459.8002
	Application Number	
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS	

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(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(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 ^j (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Add

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.

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	1459.8002
	Application Number	
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS	

If 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 World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

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				Remove
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. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix

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	1459.8002
		Application Number	
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		

Mailing Address Information For Applicant:			
Address 1			
Address 2			
City		State/Province	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			Add

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.

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.				
				Remove
If the Assignee or Non-Applicant Assignee is an Organization check here.				☐
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
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Phone Number		Fax Number		
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Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				Add

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	1459.8002
		Application Number	
Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS		

Signature:

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

Signature	/Daniel S. Polley/		Date (YYYY-MM-DD)	2014-12-22	
First Name	Daniel S.	Last Name	Polley	Registration Number	34902
Additional Signature may be generated within this form by selecting the Add button.					Add

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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

FIG 1 — Functional block diagram illustrating an exemplary headend (MSO) connected to the Mediampify cloud

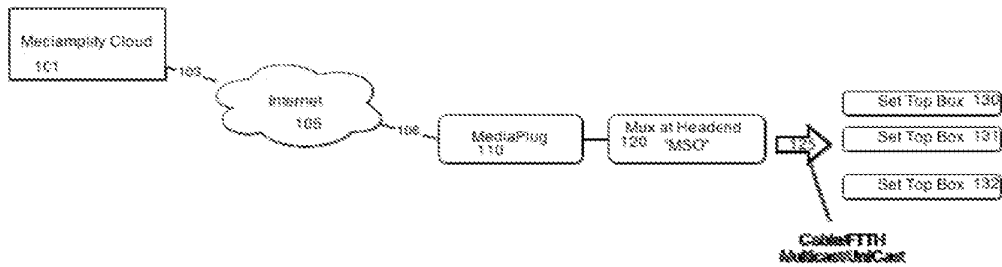


FIG 2 - System collocated in the cable operator MSO for delivery of multimedia streams

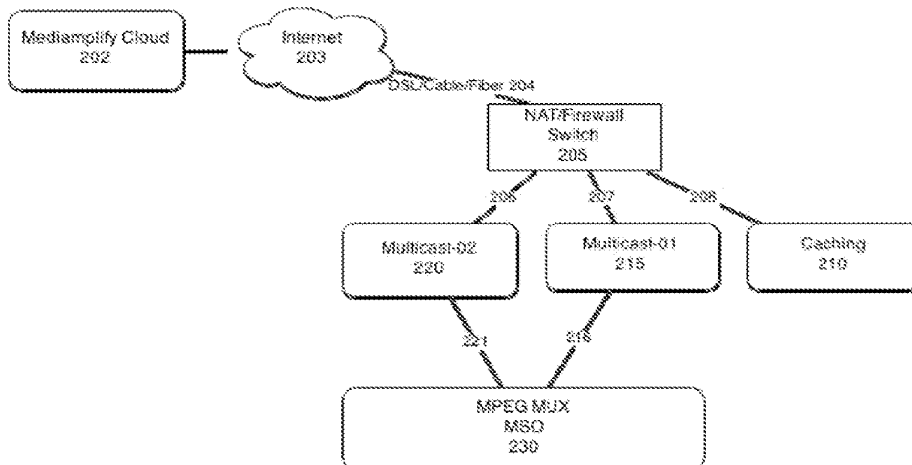


FIG 3. Initialization Method for All "Mediaplug" components (Caching, Multicast-01, Multicast-02)

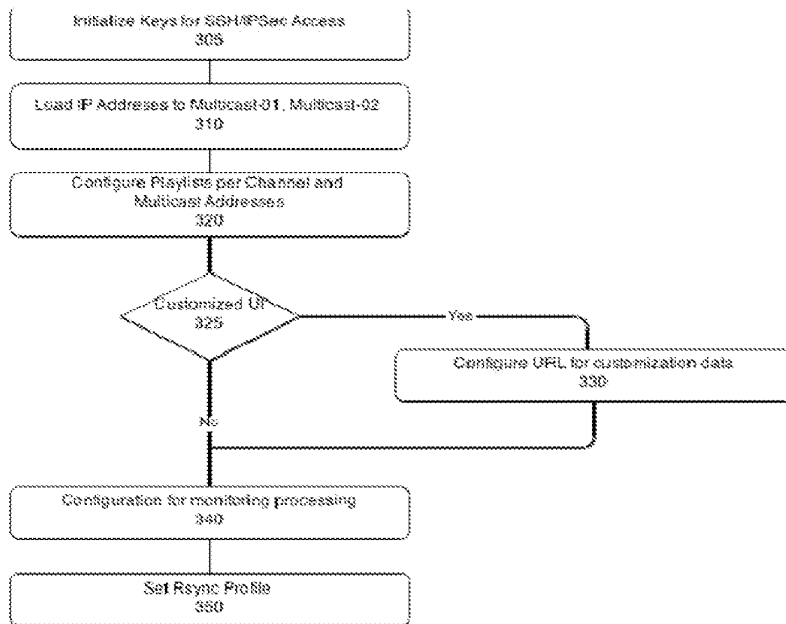


FIG 4 - Get List of files to playback/broadcast to the MSO system

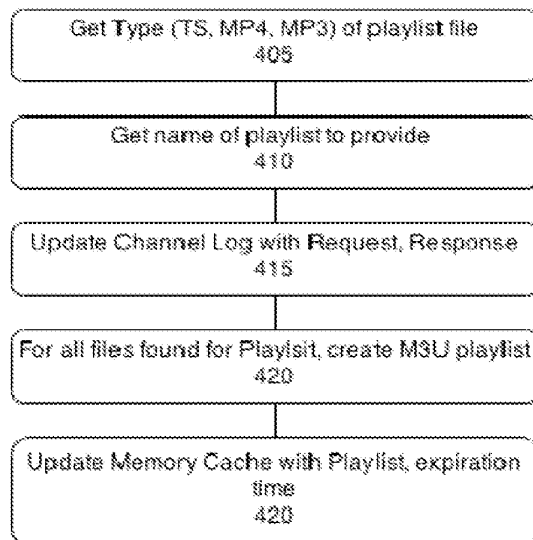


FIG 5 . Method for encoding and storing data in "Mediaplug" Caching (parallel transcode process)

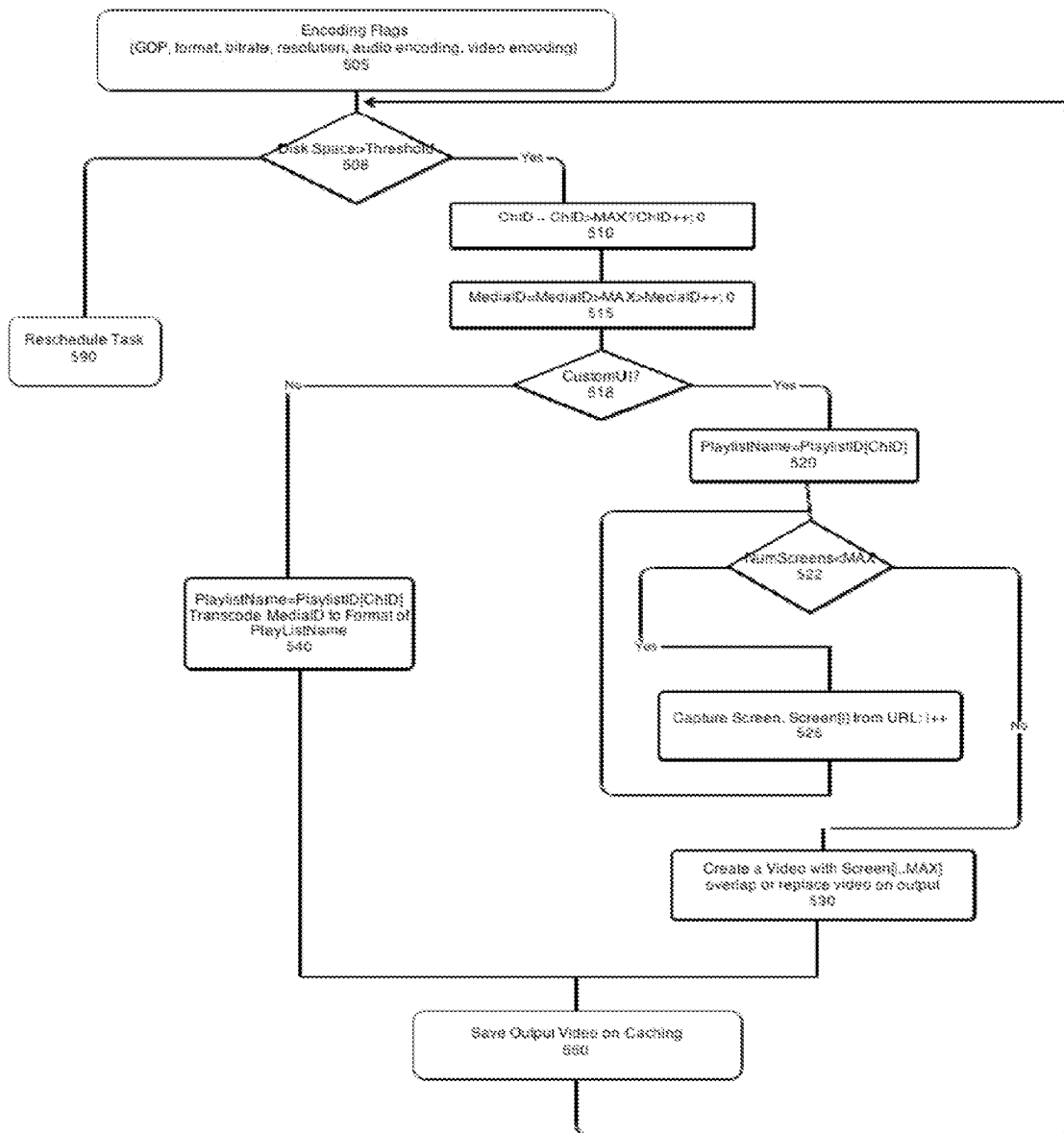
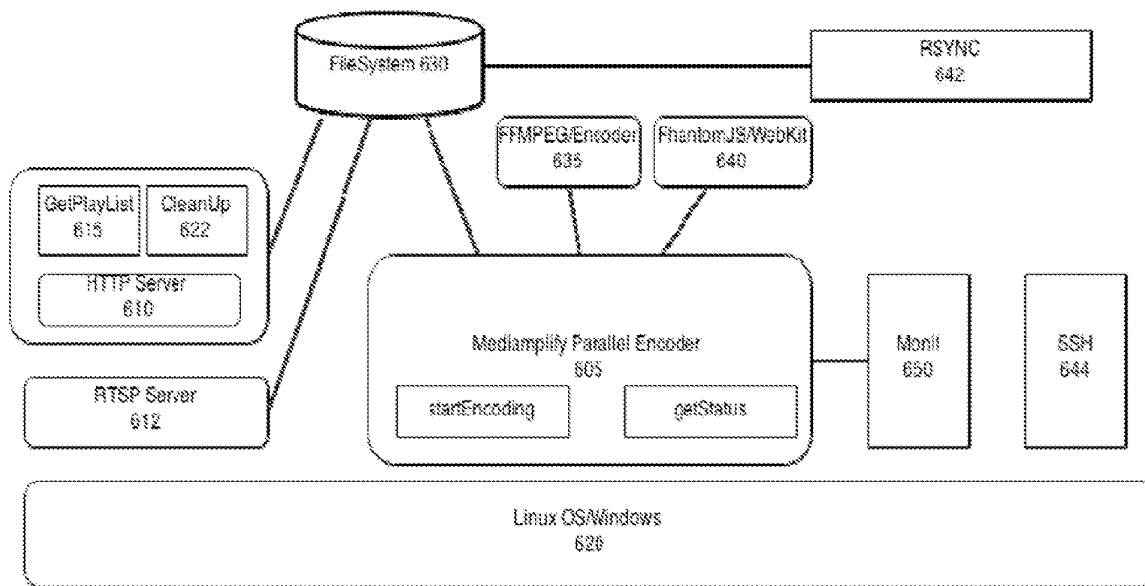
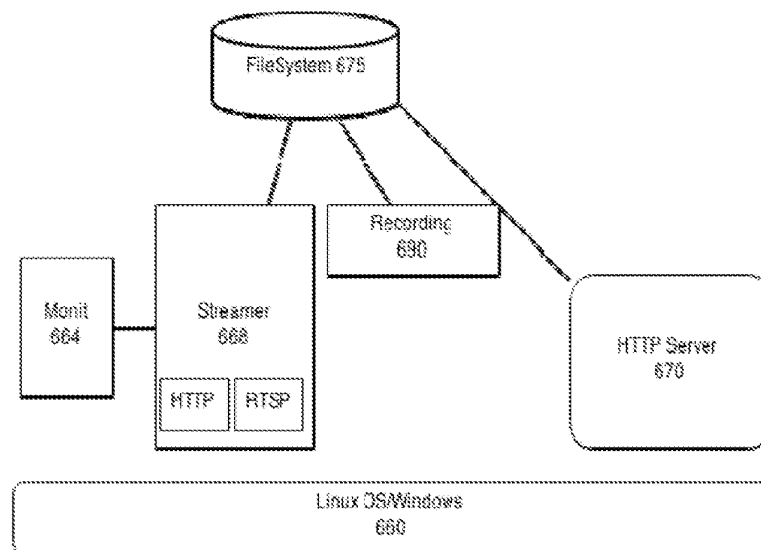


FIG 6 Block diagram for Mediaplug (Caching, Multicast-01 and Multicast-02)



CachingUnit



Multicast-01 and Multicast-02

FIG 7 Method executing at Mediaplug Multicast-01 and Multicast-02 components

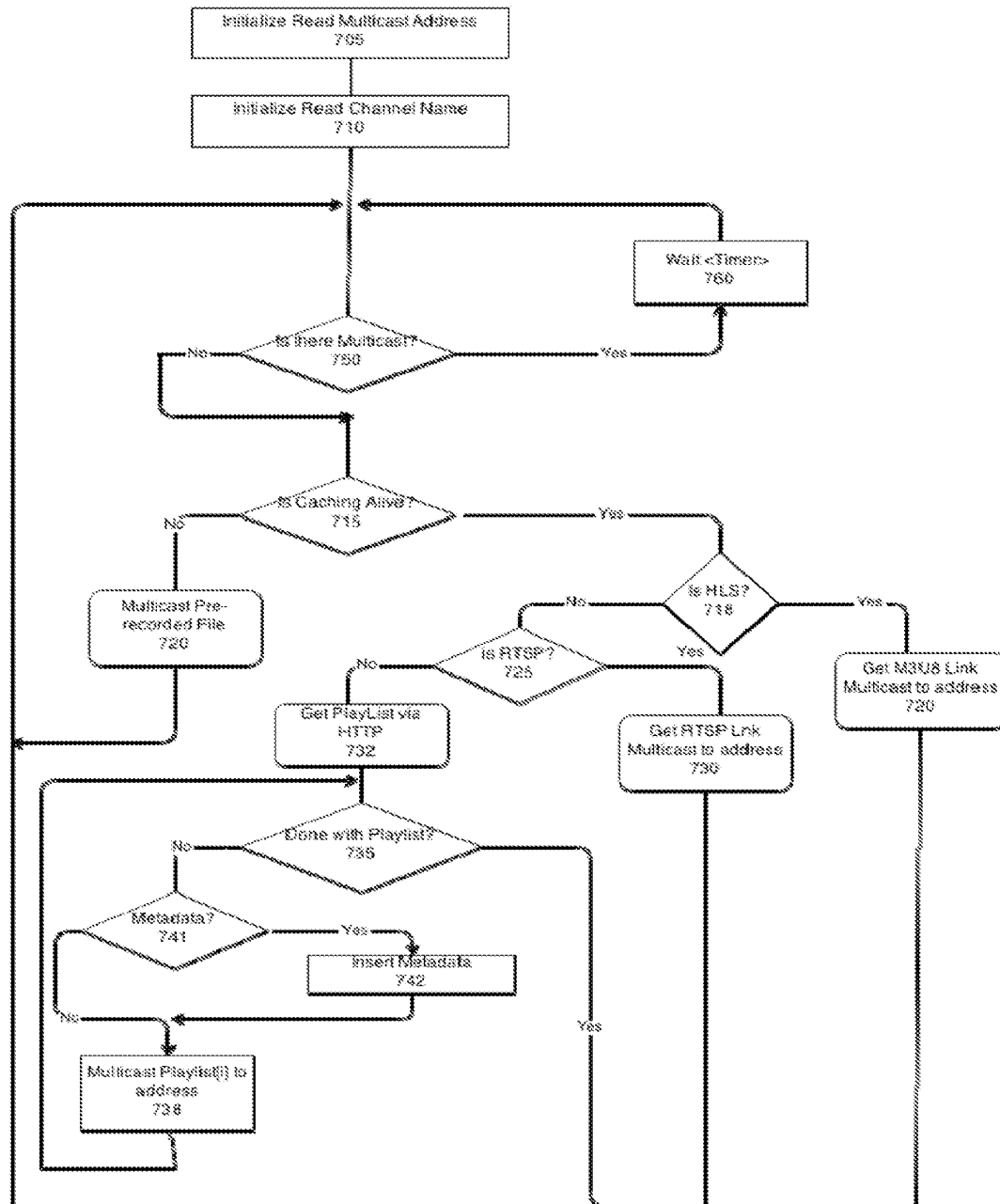


FIG 8. Method to insert metadata into an MPEG TS

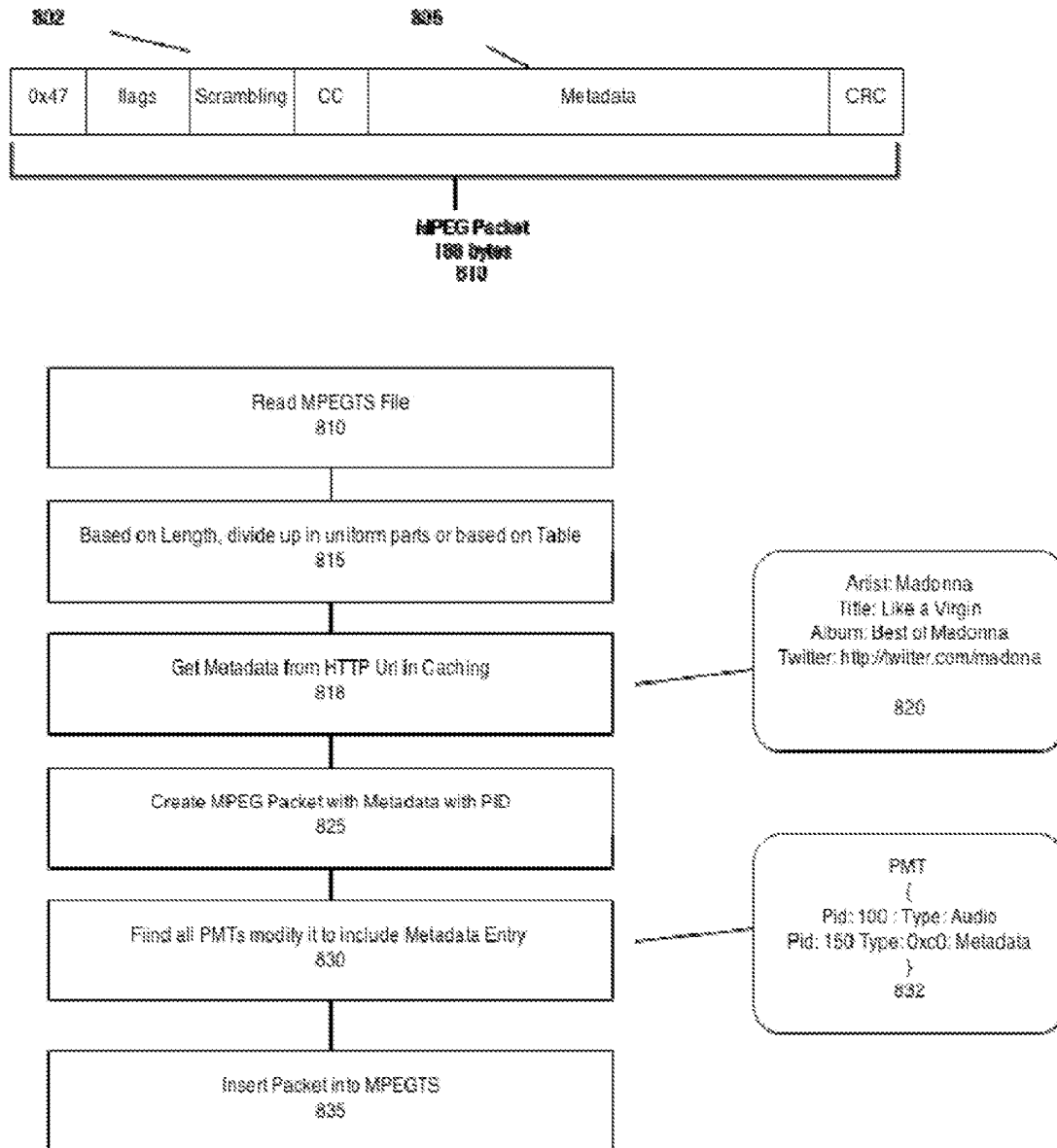


FIG 9. Virtualized version of the Mediaplug (Caching, Multicast-01, and Multicast-02)

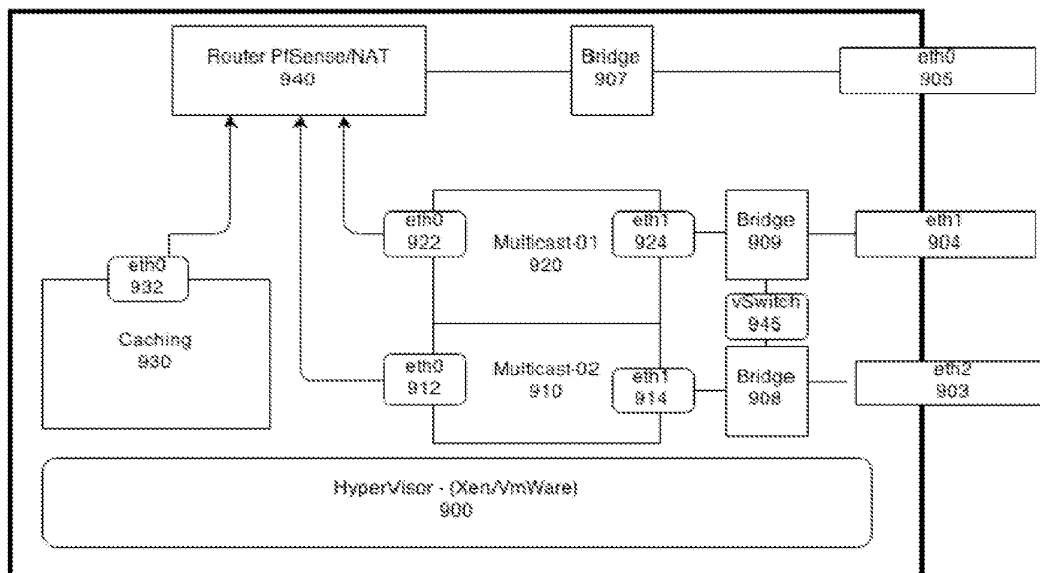
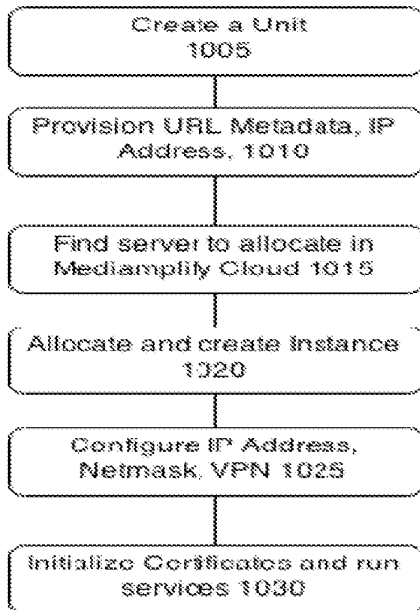


FIG 10 – Method to initialize virtual mediaplug components



**DOCUMENT MADE AVAILABLE UNDER THE
PATENT COOPERATION TREATY (PCT)**

International application number:	PCT/US2015/067464
International filing date:	22 December 2015 (22.12.2015)
Document type:	Certified copy of priority document
Document details:	Country/Office: US
	Number: 62/095,504
	Filing date: 22 December 2014 (22.12.2014)
Date of receipt at the International Bureau:	01 February 2016 (01.02.2016)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a),(b) or (b-bis)

PCT REQUESTOriginal (for **SUBMISSION**)

0	For receiving Office use only	
0-1	International Application No.	PCT/US15/67464
0-2	International Filing Date	22 DECEMBER 2015 (22.12.15)
0-3	Name of receiving Office and "PCT International Application"	PCT INTERNATIONAL APPLICATION RO/US
0-4	Form PCT/RO/101 PCT Request	
0-4-1	Prepared Using	PCT-SAFE [EASY/EFS-Web mode] Version 3.51.067.243 MT/FOP 20150401/0.20.5.22
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	United States Patent and Trademark Office (USPTO) (RO/US)
0-7	Applicant's or agent's file reference	35116-00001
I	Title of Invention	METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS
II	Applicant	
II-1	This person is	Applicant and inventor
II-2	Applicant for	All designated States
II-4	Name (LAST, First)	HERNANDEZ-MONDRAGON, Edwin A.
II-5	Address	4890 NW 101 AVENUE CORAL SPRINGS, Florida 33076 United States of America
II-6	State of nationality	US
II-7	State of residence	US

PCT REQUESTOriginal (for **SUBMISSION**)

IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	Agent
IV-1-1	Name (LAST, First)	RODRIGUEZ, Roberto
IV-1-2	Address	525 OKEECHOBEE BLVD. 15TH FL WEST PALM BEACH, Florida 33401 United States of America
IV-1-3	Telephone No.	5618477800
IV-1-4	Facsimile No.	5618477801
IV-1-5	e-mail	WPBDOCKET@NOVAKDRUCE.COM
IV-1-5(a))	E-mail authorization The receiving Office, the International Searching Authority, the International Bureau and the International Preliminary Examining Authority are authorized to use this e-mail address, if the Office or Authority so wishes, to send notifications issued in respect of this international application:	exclusively in electronic form (no paper notifications will be sent)
IV-1-6	Agent's registration No.	73774
V	DESIGNATIONS	
V-1	The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.	
VI-1	Priority claim of earlier national application	
VI-1-1	Filing date	22 December 2014 (22.12.2014)
VI-1-2	Number	62/095,504
VI-1-3	Country or Member of WTO	US
VI-2	Priority document request The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1

PCT REQUESTOriginal (for **SUBMISSION**)

VI-3	Incorporation by reference : where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20.5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20.6, incorporated by reference in this international application for the purposes of Rule 20.6.		
VII-1	International Searching Authority Chosen	United States Patent and Trademark Office (USPTO) (ISA/US)	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	—	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	—	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	—	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	—	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	—	
IX	Check list	Number of sheets	Electronic file(s) attached
IX-1	Request (including declaration sheets)	4	✓
IX-2	Description	21	—
IX-3	Claims	5	—
IX-4	Abstract	1	✓
IX-5	Drawings	9	—
IX-7	TOTAL	40	
	Accompanying Items	Paper document(s) attached	Electronic file(s) attached
IX-8	Fee calculation sheet	✓	—
IX-20	Figure of the drawings which should accompany the abstract	1	
IX-21	Language of filing of the international application	English	
X-1	Signature of applicant, agent or common representative	/ROBERTO RODRIGUEZ, REG. NO. 73774/	
X-1-1	Name (LAST, First)	RODRIGUEZ, Roberto	
X-1-3	Capacity (if such capacity is not obvious from reading the request)		

PCT REQUESTOriginal (for **SUBMISSION**)**FOR RECEIVING OFFICE USE ONLY**

10-1	Date of actual receipt of the purported international application	22 DECEMBER 2015 (22.12.15)
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/US
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	
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PCT Recordation of Search History

Case/PCT Application Number: PCT/US15/67464

CLIN Number/Technical Field of PCT Application: 4

Dates During Which the Search was Conducted: 17 April 2016 – 20 April 2016

Date of Completion of Recordation of Search History Form: 20 April 2016

Research Analyst Initials: OVM

Search Approval Official (SAO) Initials: HKP

Field of Search/Classification Information:

IPC(8) Classifications: H04N 21/84, 21/85, 21/236, 21/2343, 21/235, 21/00; H04H 20/51, 20/00 (2016.01)

CPC Classifications: H04N 21/84, 21/85, 21/236, 21/2343, 21/235, 21/00; H04H 20/51, 20/00

Databases Searched (Patent and Non-Patent Literature (NPL), Including Sub-Databases and Files Searched) and Search Terms Used:

PatSeer (US, EP, WO, JP, DE, GB, CN, FR, KR, ES, AU, IN, CA, Other Countries (INPADOC), RU, AI, CH, TH, BR, PH); IEEE/IEEEExplore; Google/Google Scholar; IP.com

Keywords: content, video, audio, image, multi-media, music, format, assemble, combine, aggregate, stream, provider, operator, broadcast, website, URL, internet

Database Search String Recordation, Including Dates of Searches):**Patent Database Search Strategy/Results:**

Patseer (20 April 2016)

ID	Search String	Deduped	Records	Created Date
L34	L32 NOT L33	ALL	275	20-Apr-16
L33	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w3 format*) AND ((assembl* OR combin* OR aggregat*) w3 stream*) AND broadcast* AND ((web* OR internet OR URL* OR (universal* w2 resource*)) w3 (content OR video* OR audio OR image*)) AND ((provider* OR operator*) w2 content) AND (meta* OR descript*) AND (chang* OR updat*) AND (((moving w2 picture*) OR MPEG*) w4 format*) AND multiplex* AND (cable OR satellite*)) AND CPC:(H04N* OR H04H*)	ALL	417	20-Apr-16
L32	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w3 format*) AND ((assembl* OR combin* OR aggregat*) w3 stream*) AND broadcast* AND ((web* OR internet OR URL* OR (universal* w2 resource*)) w3 (content OR video* OR audio OR image*)) AND ((provider* OR operator*) w2 content) AND (meta* OR descript*) AND (chang* OR updat*) AND ((moving w2 picture*) OR MPEG*) AND multiplex* AND (cable OR satellite*)) AND CPC:(H04N* OR H04H*)	ALL	692	20-Apr-16
L31	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w3 format*) AND ((assembl* OR combin* OR aggregat*) w3 stream*) AND broadcast* AND ((web* OR internet OR URL* OR (universal* w2 resource*)) w3 (content OR video* OR audio OR image*)) AND (provider* OR operator*) AND (meta* OR descript*) AND (chang* OR updat*) AND ((moving w2 picture*) OR MPEG*) AND multiplex* AND (cable OR satellite*)) AND CPC:(H04N* OR H04H*)	ALL	1638	20-Apr-16
L30	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w3 format*) AND ((assembl* OR combin* OR aggregat*) w3 stream*)	ALL	2682	20-Apr-16

	AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*) AND (meta* OR descript*) AND (chang* OR updat*) AND ((moving w2 picture*) OR MPEG*) AND multiplex* AND (cable OR satellite*)) AND CPC:(H04N* OR H04H*)			
L29	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w3 format*) AND ((assembl* OR combin* OR aggregat*) w3 stream*) AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*) AND (meta* OR descript*) AND (chang* OR updat*) AND ((moving w2 picture*) OR MPEG*) AND multiplex*) AND CPC:(H04N* OR H04H*)	ALL	2978	20-Apr-16
L28	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w3 format*) AND ((assembl* OR combin* OR aggregat*) w3 stream*) AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*) AND (meta* OR descript*) AND (chang* OR updat*) AND ((moving w2 picture*) OR MPEG*)) AND CPC:(H04N* OR H04H*)	ALL	3849	20-Apr-16
L27	TAC:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format*) AND ((assembl* OR combin* OR aggregat*) AND stream*) AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*) AND (meta* OR descript*) AND (chang* OR updat*) AND ((moving w2 picture*) OR MPEG*)) AND CPC:(H04N* OR H04H*)	ALL	14	20-Apr-16
L26	TAC:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format*) AND ((assembl* OR combin* OR aggregat*) AND stream*) AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*) AND (meta* OR descript*) AND (chang* OR updat*)) AND CPC:(H04N* OR H04H*)	ALL	59	20-Apr-16
L25	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w4 format*) AND ((assembl* OR combin* OR aggregat*) w3 stream*) AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*) AND (meta* OR descript*)) AND CPC:(H04N* OR H04H*)	ALL	5180	20-Apr-16

L24	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w4 format*) AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*) AND (meta* OR descript*)) AND CPC:(H04N* OR H04H*)	ALL	34253	20-Apr-16
L23	TAC:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format*) AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*) AND (meta* OR descript*)) AND CPC:(H04N* OR H04H*)	ALL	75	20-Apr-16
L22	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w4 format*) AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*)) AND CPC:(H04N* OR H04H*)	ALL	34651	20-Apr-16
L21	TAC:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format*) AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*)) AND CPC:(H04N* OR H04H*)	ALL	198	20-Apr-16
L20	TA:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format*) AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND (provider* OR operator*)) AND CPC:(H04N* OR H04H*)	ALL	2	20-Apr-16
L19	TACD:(((content* OR video* OR audio* OR imag* OR multi_media* OR music) w4 format*) AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*))) AND CPC:(H04N* OR H04H*)	ALL	50208	20-Apr-16
L18	TACD:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*))) AND CPC:(H04N* OR H04H*)	ALL	87473	20-Apr-16
L17	TAC:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND	ALL	561	20-Apr-16

	(assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND CPC:(H04N* OR H04H*)			
L16	TA:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast* AND (web* OR internet OR URL* OR (universal* w2 resource*)) AND CPC:(H04N* OR H04H*))	ALL	11	20-Apr-16
L15	TACD:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast*) AND CPC:(H04N* OR H04H*)	ALL	122065	20-Apr-16
L14	TAC:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast*) AND CPC:(H04N* OR H04H*)	ALL	1619	20-Apr-16
L13	TA:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND broadcast*) AND CPC:(H04N* OR H04H*)	ALL	84	20-Apr-16
L12	TACD:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND (provider* OR operator*)) AND CPC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	13745	20-Apr-16
L11	TAC:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND (provider* OR operator*)) AND CPC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	169	20-Apr-16
L10	TA:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND (provider* OR operator*)) AND CPC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	2	20-Apr-16

L9	TACD:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream*) AND CPC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	20759	20-Apr-16
L8	TAC:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream*) AND CPC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	928	20-Apr-16
L7	TA:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream*) AND CPC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	128	20-Apr-16
L6	TACD:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream*) AND IC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	15500	20-Apr-16
L5	TAC:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream*) AND IC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	695	20-Apr-16
L4	TA:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream*) AND IC:("H04N21/84" OR "H04N21/85" OR "H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")	ALL	68	20-Apr-16
L3	TA:((content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*)) AND IC:("H04N21/84" OR "H04N21/85" OR	ALL	224	20-Apr-16

	"H04N21/236" OR "H04N21/2343" OR "H04N21/235" OR "H04N21/00" OR "H04H20/51" OR "H04H20/00")			
L2	INV:((EDWIN* w2 "HERNANDEZ-MONDRAGON"))	ALL	2	20-Apr-16
L1	ASN:((EDWIN* w2 "HERNANDEZ-MONDRAGON"))	ALL	0	20-Apr-16

Non-Patent Literature (NPL) Search Strategy/Results:

IEEE/IEEEXplore (Search Date: 20 April 2016):

- (content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream*
- (content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND (provider* OR operator*)
- (content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND (provider* OR operator*) AND broadcast*

Google/Google Scholar (Search Date: 19 April 2016):

- content stream assembly format provider broadcast
- web content format stream combining broadcast
- web content format stream assembly delivery

IP.com (Search Date: 18 April 2016):

- (content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream*
- (content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND (provider* OR operator*)
- (content* OR video* OR audio* OR imag* OR multi_media* OR music) AND format* AND (assembl* OR combin* OR aggregat*) AND stream* AND (provider* OR operator*) AND broadcast*

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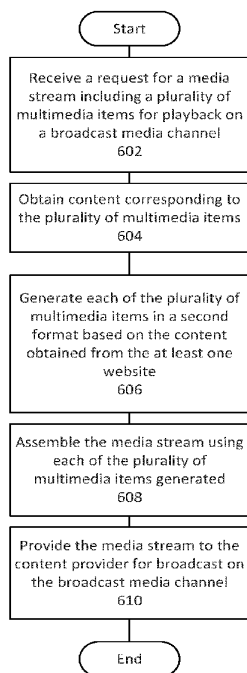
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[Continued on next page]

(54) Title: METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND
SATELLITE OPERATORS

600



(57) Abstract: Systems, methods, and computer-readable media for delivering multimedia content from the cloud to cable operators are disclosed. A device located at the cable headend or implemented in the cloud can receive a request for at least one media stream for playback on a broadcast media channel. Content corresponding to a plurality of multimedia files in the media stream can be obtained from the internet or a cloud based service. The content can be used to generate the multimedia files in a format that is compatible with the cable operator. The multimedia files can be used to assemble the at least one media stream which can be provided to the cable operator for broadcast on the broadcast media channel.

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METHOD, SYSTEM, AND APPARATUS FOR MULTIMEDIA CONTENT DELIVERY TO CABLE TV AND SATELLITE OPERATORS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to U.S. Provisional Application 62/095,504, filed December 22, 2014, the complete disclosure of which is incorporated herein by reference in its entirety.

FIELD OF THE DISCLOSURE

[0002] The present disclosure provides a mechanism for delivering multimedia content from a cloud-based system to cable or satellite content providers.

[0003] The disclosure describes a novel method and a system for continuous media delivery and secured synchronization of multimedia files that are broadcasted to set top boxes or subscriber units in the field that are connected to IPTV or Cable Systems. The present technology can securely connect to a cloud-based platform (e.g. OpenStack, Amazon EC2, Mediamplify Cloud, etc.), creates a set of multimedia files (e.g. MPEG4 movies) into a secured repository (e.g. Secured File System, Linux/Windows, etc.), modifies those files according to certain rules as defined by the method herein, and reproduces those signals via a multicast video stream (e.g. User Datagram Protocol (UDP) multicast, etc.) encapsulated in a Transport Stream (TS) frame that can be a multiple transport stream (several transports in one TS frame) or a single transport stream (one transport stream according to the MPEG-2 Part 1 Specification or similar multimedia streaming that is compatible with MPEG-TS at a predetermined rate or at a variable bit rate).

BACKGROUND

[0004] Cable operators, Multiple System Operators (MSO), and Digital Satellite Systems (DSS) deliver media content by utilizing satellite, Radio Frequency(RF) and Integrated Receiver and Decoder (IRD) technologies, which provide outputs that can include Asynchronous Serial Interface (ASI) signal formats. Additionally, MSOs and DSSs use dedicated hardware encoders and transcoding systems if the source video/audio is incompatible with the set top boxes of the cable or satellite operator. In general, the video/audio content delivered via the satellite to the cable or satellite operator arrives via wireless link or receiver, which is processed by an IRD that receives the stream from the satellite and can ultimately broadcast that signal to the cable operator head end

in several formats. In addition, some systems may include multicast units connected with IRDs that tune to the right transponder system.

[0005] Satellite systems are used to deliver data (e.g. TV, radio, Video-on-Demand, multimedia streams) from a particular source (e.g. third-party content provider) to cable head end systems or other satellite systems. Satellite delivery is performed via a broadcast signal containing digital pictures and audio inside a transponder frequency. Transponders are radio frequency (RF) space allocated in a particular satellite.

[0006] For example, a third-party content provider can maintain multimedia files in CD/DVDs, pre-recorded storage, or as pre-recorded files that are reproduced in a particular audio or video encoding format using a video or audio encoder (e.g. MP3, H.264, AC3, and others). The audio and video is then made part of an RF signal that is broadcasted to the satellite system. This signal is then received by the cable or satellite operator using an antenna receptor and is decoded to generate either an analog signal (e.g. RCA Cables or any other analog interface) or digital signal (e.g. ASI, Asynchronous Serial Interface). If an analog signal is received, modern DVB (Digital Video Broadcasting) Cable and Satellite systems will encode this signal to their particular video/audio encoding requirements such that it can be broadcasted in digital packets via a multicast MPEG Transport Stream. The same occurs if a receiver decodes the signal in ASI. As such, this signal is converted from ASI to Ethernet, or simply redirected to a multicast MPEG Transport stream if arriving in a compatible encoding format for the receiving head end cable system.

[0007] When no satellite is being used, video, pictures and music, are read out from the DVD or a hard-drive containing MPEG-layer 3 or MPEG-layer 2 files that were encoded at a pre-determined bit rate according. Those video feeds can be reproduced at a synchronized timing using a multicast MPEG Transport Stream using RTP (Real-time Transport Protocol)-based multicast communication and RTCP (RTP Control Protocol)-based mechanisms, as well as standard UDP (User Datagram Protocol) multicast streams with proprietary timing.

[0008] Additionally, IPTV systems can provide mechanisms to broadcast a signal using the multicast protocol in MPEG transport streams to a customer premises with compatible set top boxes (same encoder, same streams, encryption keys, etc). A compatible set top box is such that when connected to the cable TV system it can properly decode video/audio from the cable operator's head

end system. Some of these IPTV systems rely on CDN (Content Delivery Networks) that enable distribution of multimedia files to IP-enabled devices. For example, a mechanism can be provided whereby a head end content (MSO) that is being broadcasted to a cable subscriber is also available to an IP-enabled device such as a smartphone, PC, or tablet computer.

SUMMARY

[0009] Disclosed are systems, devices, methods, and non-transitory computer-readable media for media delivery from a cloud or IP-based distribution network, or CDN (Content Delivery Network) to MSO (Multiple System Operators) or head-ends that include cable and satellite delivery mechanisms. The present technology unifies cloud-based delivery (Mediamplify cloud) with the cable-based mechanism (e.g. Comcast, Verizon FiOS).

[0010] An example computer-implemented method can receive, from a content provider such as a cable or satellite operator, a request for at least one media stream for playback on a broadcast media channel. The request for the at least one media stream can include a request for a plurality of multimedia items. Content corresponding to the plurality of multimedia items can be obtained from at least one website or cloud service that offers the content in at least one first format. Based on the obtained content, the plurality of multimedia files can be generated in a second format that is compatible with the content provider. The media stream can be assembled using each of the multimedia items generated in the second format. The media stream can be provided to the content provider for broadcast on the broadcast media channel.

[0011] In some aspects of the present technology, obtaining the content can include retrieving at least one audio file corresponding to an audio component of the multimedia item and retrieving a plurality of images as screen captures that can correspond to a video component of the multimedia item. Generating the multimedia files in the second format can include combining the plurality of images and the at least one audio file to create each of the multimedia items.

BRIEF DESCRIPTION OF THE DRAWING

[0012] There are shown in the drawings, embodiments which are presently preferred, it being understood, however, that the disclosure is not limited to the precise arrangements and instrumentalities shown

- [0013] FIG. 1 shows an example block diagram illustrating an exemplary head end (MSO);
- [0014] FIG. 2 shows an example block diagram of the apparatus located at the MSO facility (mediaplug);
- [0015] FIG. 3 shows an example method for initialization of Mediaplug components;
- [0016] FIG. 4 shows an example method to obtain list of files to multicast to a cable operator MSO;
- [0017] FIG. 5 shows an example method for encoding video and audio files;
- [0018] FIG. 6 shows an example method for providing multimedia content to a cable operator;
- [0019] FIG. 7 shows an example block diagram of example software components of the Mediaplug;
- [0020] FIG. 8 shows an example method to multicast from a component in the Mediaplug;
- [0021] FIG. 9 shows an example method to insert metadata into in an MPEG Transport Stream;
- [0022] FIG. 10 shows an example block diagram for a Virtualized Mediaplug
- [0023] FIG. 11 shows an example method to initialize virtual mediaplug components; and
- [0024] FIG. 12 shows an example possible system embodiment for implementing various embodiments of the present technology
- [0025] While the present technology is amenable to various modifications and alternative forms, specifics thereof have been shown by way of example in the drawings and will be described in detail. It should be understood, however, that the intention is not to limit the present technology to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the present technology.

DETAILED DESCRIPTION

[0026] The following description should be read with reference of the drawings, in which like elements are numbered in similar fashion. The drawings are not necessarily at scale and are not intended to limit the scope of the disclosure. Those skilled in the art understand that there are

alternatives that may be used as well which are also considered to be within the scope of the disclosure.

[0027] Generally, the disclosed technology pertains to a delivery mechanism for providing multimedia content to cable systems without the use of a satellite system in a fault-tolerant and reliable fashion. FIG. 1 illustrates a block diagram that includes a Mediaplify Cloud 101. The cloud 101 can refer to a set of virtualized instances or non-virtualized instances of one or more servers that provide access to archives and digital files with media content stored in them. For example, the cloud 101 can be implemented using VMWave or Xen and OpenStack, or simply reside in Amazon Web Services or Rackspace. In addition, special provisioning can be provided in cloud 101 for secured access.

[0028] The cloud 101 service files can be accessible via the internet 105 and can be stored in a cloud-based file system or cluster file system (e.g. GlusterFS or Hadoop, Amazon S3). These files can be multimedia files that include, as non-limiting examples, MPEG-4 Video files with H.264 encoded video and AAC encoded audio or MPEG-layer 3 audio as well (MPEG2 Video could also be used). These files can be accessed using a secured transport protocol such as, but not limited to, SSL or a synchronization tool as “rsync,” commonly found in Linux/macOS environments. The communication link 106 can be a DSL, Cable Modem, Wireless WAN, Fiber, Metro Ethernet, etc. and can be linked with the MediaPlug 110 unit. The Mediaplug 110 can reside at the “MSO” facility and can be collocated with all the cable or satellite operator equipment. The MSO is a facility used by the Cable Operator to receive all TV and Radio Programming that the cable operator will then multiplex, re-encode, and distribute from the MSO to a set of subscriber units with set top boxes, or modulate the signal in TV analog channels (2-60+).

[0029] One function of the MediaPlug 110 is to provide multimedia content, e.g., video and audio, to an MPEG multiplexer at the headend 120. The content can be pre-formatted in MPEG Transport Streams that the multiplexer 120 (e.g. Arris TMX-2010) will then be able to capture, reformat in any way the operator requires, and deliver to the cable operator’s subscribers via Coaxial Cable 125 or any other means suitable for a multicast or unicast delivery to its customers with “Set Top boxes” 130, 131, 132. A “Set Top Box” is customer premise equipment that will be able to decode and

display in a TV set or other screen display, via a signal received by its HDMI or analog input, the contents of the TV programming the cable operator offers.

[0030] The Mediaplug 110 can be a computer or server or set of computers or servers that can communicate with the Cloud 101 using a standard Local Area Network (e.g. Gigabit Ethernet). The Mediaplug 110 can store, encode, and transmit multimedia files in the format that the cable operator at its MSO requires. This cable format may include audio, video, and metadata (subtitles, control data, and any additional component that can be packaged in an MPEG Packet that is part of the MPEG Transport Stream). In one embodiment, Mediaplug 110 can include components such as a caching unit, and one or more multicasting servers.

[0031] FIG. 2 illustrates an example configuration of the hardware components of Mediaplug 110 which includes three servers. A server is a computer device, usually rack mountable unit with volatile memory such as RAM, one or more micro-processors, and non-volatile memory such as a hard disk. However, one skilled in the art will recognize that the present technology is not limited to a particular configuration and can be varied according to different specifications. FIG. 2 illustrates Mediaplug Cloud 202 which is connected to the Internet backbone 203. Link 204 (e.g. DSL, Cable Modem, Fiber) provides connectivity between cloud 202 and a Network Address Translator unit 205 (e.g. Cisco RVS4000, or any other NAT device) which can provide Gigabit Ethernet switching capabilities. The lines 206, 207, and 208 show Gigabit Ethernet links, however one skilled in the art will understand that Gigabit Ethernet or a Wireless LAN using 802.11g/n would be also a suitable interface to be used in a Mediaplug configuration. The Caching unit 210 can be the main storage component in the system and it can contain all of the multimedia files in the format required by the cable operators, such as the Transport Stream format. The caching unit can communicate with Multicast-01 215 and Multicast-02 220. The two Multicast units 215, 220 can pull or obtain information from the caching unit via TCP/IP or UDP, using protocols such as HTTP (Hypertext Transport Protocol) or RTSP (Real-time Streaming Transport). The caching unit can also encode and transcode the multimedia files it downloads from the Cloud 202. The caching unit can also keep updated information of all the metadata and create customizable screens that can be converted into video formats compatible with the Transport Stream content that will be provided to the cable operator at its MSO. MPEG MUX MSO 230 can correspond to a program residing in a computer system that processes and handles the MPEG streams from multiple sources. The MUX

230 can also function as the bridge between the source of the signal and the customer's set top box units. A non-limiting example program would be the CherryPicker DM6400 by MOTOROLA. Each of the components or modules of the Mediaplug can include software for performing functions and/or methods according to the present technology.

[0032] FIG. 3 illustrates an example method that can be used to configure and provision the units at boot-time. Each unit can initialize keys for SSH/IP Sec access at 305. For example, the units can use IPsec and SSH Tunnel keys that can be stored in the administrator user account. The keys can be generated by the Mediamply Cloud that are private keys or certificates, shared secrets or similar components by which the Mediaplug can connect securely with the Mediamply cloud. Each cable operator can provide custom-based IP addressing at 310 for the Gigabit Ethernet ports that connect to the operators' network. Changing the IP addresses of the Multicast-01 and/or Multicast-02 refers to the IP address by which the links 221 and 216 in FIG. 2 are linked to the MPEG MUX MSO unit. A change of the IP address can refer to the 'ifconfig' command which is used in Linux-based systems and that can be changed in an Ubuntu box at /etc/network/interfaces file. Similarly, the network routing can be changed if the multicast address cannot be routed to the default gateway which points to the 205 NAT, but to 221 and 216 respectively for Multicast-02 and Multicast-01. In general, the 239.*.* network address may be routed to those interfaces.

[0033] At step 320, the Mediaplug can configure playlists per channel and multicast address. The playlist and channel configuration can be obtained from the cable/satellite operator and can include any number of channels for broadcasting multimedia content to end customers. As an example, the channels may include music channels corresponding to different music genres, e.g. rock, alternative, classical, jazz, hip hop, etc. Based on the particular genre, a corresponding playlist can be selected and/or configured. The Mediaplug can also determine the multicast address for each of the channels.

[0034] In some configurations a customizable user interface (UI) can be added to the output video MPEG Transport stream. As such, if the "Custom UI" variable is then true and valid, 325, a link or URL 330 is loaded into the Mediaplug configuration that can be used when the video interface is created. The custom video interface can be created and fetched as needed or it can be created in real-time for a particular channel or for all the channels. The custom user interface variable can be

uniquely configured per channel in the Mediaplug. The mediaplug can also monitor 340 all of the processes to ensure stability and continuous, uninterrupted operation. The initialization of the Mediaplug can also include setting the RSYNC profile 350. The RSYNC profile can be used to update and synchronize media content with the cloud when the Mediaplug determines that the content has changed or been modified.

[0035] As described above, the Mediaplug can broadcast the multimedia MPEG stream using the programmed IP Address in multicast-01 and multicast-02 according to the method illustrated in FIG. 3. In FIG. 4, an example method is shown for obtaining the list of files to playback or broadcast to the MSO system. The file type or format requested by the multicasting embodiment, e.g. multicast-01 or multicast-02, can include Transport Stream (e.g. TS) and/or MPEG-4 Part 14 (e.g. MP4) values 405. This request is executed from any of the multicasting embodiments, usually making use of the HTTP GET Request. The multicasting unit can connect to an HTTP Server and retrieve the list of files based on the type identified by the request. As the caching unit may handle multiple channels of different types and name, each channel can have a unique identifier corresponding to the name of the playlist. For example channel name “Cool” or “Rock,” 410 are names that can identify the channel to be retrieved from the caching server. The activity log in the request can also be updated keeping track what step of the process is being completed 415. At 420, the caching server can generate a “playlist file” of mime type “audio/x-mpegurl” which will be interpreted as a multimedia playlist file when requested. Finally, as the playlist usually may not vary for a period of time until a new request is received, the playlist can be kept in the local memory caching service 425.

[0036] As the requests arrive at the “Caching” unit from the multicasting units, the “Caching” unit can be configured to perform parallel encoding for all the different channels available from the unit. FIG. 5 illustrates an example method that can be implemented by the Mediaplug, and in particular, by the “Caching” unit. At step 505, encoding flags or input parameters can be received which may include GOP (Group of Pictures) which is used by certain video encoders, resolution (e.g. 640x480) in pixels, bit rate in Kilobits per second, any encoding type of video (e.g. H.264), encoding type of audio (e.g. AC-3), duration of the video feed, etc. In addition, a “format” parameter can be received which refers to the output format or encapsulation, MPEG TS or MPEG4. The caching unit encodes audio and video, and can use the disk space in the Mediaplug. Hence in 508 the method

checks for sufficient space left in the memory or hard drive. This task can be run on a thread together with all the other tasks that are working in parallel in order to speed up the processes of encoding and transcoding.

[0037] Several indexes or identifiers by the name “ChID,” (these integers preferably no more than an integer value from 1 to the maximum number of channels) begin (e.g. MAX could be 50) to be generated by the caching unit 510. This method can be performed for all the channels and all media linked to that particular channel identified by “MediaID” 515, in this particular case the “MediaID.” The variable “MAX” in this context can refer to the maximum number of media files read (e.g. 500). The data captured from the media could be “Artist,” “Author,” or any other variable from an audio file. If a video file is used this could be “program name,” “movie name,” or any associated metadata information tied to the multimedia file and the Channel Identifier (ChID) associated with it “MediaID” file.

[0038] The caching unit can add a “Custom UI,” or a customizable User Interface that is designed using Hypertext Markup Language (e.g. HTML) or a web service. A web service that matches a REST interface (Representation State Transfer) and uses Javascript Object Notation (JSON) or XML (Extensible Markup Language) to respond to a custom UI request can be used. Moreover, this custom UI can include JavaScript, CSS, and HTML content files that can be rendered using a browser using WebKit (e.g. PhantomJS or Safari) or any other browser-rendering engine compatible with HTML4/5 or any future HTML version. If a customizable UI is part of the configuration 518, rendered images from a web service can be used to create overlapping video or replace any video in the video feed file. Likewise, this video or customized screen can be used when no video at all is defined in the multimedia file, e.g. Audio-only file. The web-service to be contacted may use the “PlaylistName” to be used for the Channel identified by the channel ID “ChID, ” retrieved using the “PlaylistID” function 520. Each new PlaylistName may contain different identifies to retrieve new images. Therefore one or more screens will be retrieved from the rendering engine as such 522 can be used to retrieve a set of screens from the web-service being contacted.

[0039] Capturing screens 526 can be done using a tool similar to PhantomJS (Webkit-based headless engine for rendering images) or QtCapture, or simply capturing screen frame buffers from

a machine running any software tool. Alternatively, the method can capture a video file from another rendering function, which can create a sequence of screens that can be used to generate a video file. Once all screens and video are captured, 530 the resulting output created can be a video file that then is either replaced or merged (multiplexed) with the original file. As an example, if an audio content file is used such as an MP3 file, this function can create a video file from all the screens captured by 526. Those screens are generated by calling a URL where the web-service is associated and creating a video file with the input audio and the captured screens. The output format can be an MPEG Transport Stream file that can be retrievable or streamed to the multicasting embodiment.

[0040] Once the output file containing the screen shoot sequence of videos encoded in H.264 (for example, or MPEG2Video) is created, the audio can be multiplexed and added to one of the encoding channels of the resulting video output and saved into the caching unit storage disk 550. The multiplexing can be done using tools such as FFMPEG or VLC or any proprietary tool that can multiplex audio and video files into a resulting MPEG Transport Stream (or MPEG-4 output, or any similar output).

[0041] FIG. 6 illustrates an example method 600 for providing multimedia content to a cable operator. At 602, a device such as the Mediaplug device receives a request from a cable/satellite operator for a media stream. A media stream can be formatted according to HTTP Live Streaming (HLS), an HTTP/RTSP playlist, or an RTSP stream. The media stream can include any number of multimedia items such as audio/video multimedia items. In some instances, the request can include a channel identifier that is associated with a particular category of multimedia items, such as a music genre corresponding to rock, classical, jazz, etc.

[0042] At 604, contents corresponding to the multimedia items can be retrieved, downloaded, or otherwise obtained from one or more websites or cloud based servers. The contents can include data corresponding to either or both of the audio and video components of the multimedia items. For example, the data corresponding to the audio portion can include a music file in an MP3 format. Similarly, the data corresponding to the video portion can include a video that is obtained directly from the cloud. Alternatively, the video component can be assembled by using one or more screen captures from a website. The screen captures can include captures of still images presented by the

website as well as captures of images from videos that are available on the website. As illustrated in FIG. 5, the screen capture process can be repeated any number of times.

[0043] The Mediaplugin can then generate 606 multimedia items in a second format based on the content obtained from the web server or cloud. That is, the Mediaplugin can convert/encode the audio file into a format that is suitable for the cable operator and it can also assemble the various screen captures to generate the video component of the media item. Once the audio and video files are created, they can be combined, multiplexed, or encoded to a format that can be utilized by the multimedia stream. For example, the audio can be multiplexed and added to one of the encoding channels of the video output. The various multimedia items can be used 608 to assemble the media stream in a format corresponding with the request (e.g. HLS, HTTP/RTSP, RTSP stream). The media stream can be provided 610 to the content provider for broadcast on the broadcast media channel.

[0044] FIG. 7 illustrates a block diagram of an example architecture of the Caching Unit components. The figure shows 720 as the main operating system, which can be Linux, Windows, or any other operating system in use. The caching unit can contain two types of operating system services HTTP 710 and RTSP 712. The RTSP service provides access so the media saved or created in the repository of the caching unit file system 730. The RTSP server can be implemented using the Live555 RTSP server or similar. Alternatively, the HTTP Server can be implemented using “nginx” or “apache” web browsers, and the RTSP Servers can be implemented using Live555 services. In the case of the HTTP Server, this can also be used to get the Playlist of files generated from the method on FIG-5 715.

[0045] The GetPlayList 715 command can be implemented as follows:

- Receive and process a request for the name of the channel or playlist to be used,
- Retrieve all the filenames ordered by date of creation of all the files in a particular directory,
- Cache all the files into cache memory (e.g. Memcache or similar tool),
- Add type of HTTP header as M3U or PLS (e.g. a text file with a list of files or URLs to play),

- Return a list of HTTP or RTSP URLs to access each video generated or stored in the caching unit.

[0046] In some embodiments, the HTTP Server can also be used to clean up, update, and delete operations. The block unit called “CleanUp” 722 is in charge of keeping up to date caching information data and/or deleting files already used or that are not required to be used anymore by the multicast unit(s). Also the HTTP Server functions can include servicing M3U8 files corresponding to the HTTP Live Streaming format and all the segments created by the HTTP Live Streaming function. As such, a HTTP Live Streaming (HLS) generation program will produce the files and segment them as needed by the encoder and can then be serviced by the HTTP Server 710. The Mediamply Parallel Encoder 705 corresponds to a block that can implement the method shown in FIG 5. The resulting outputs from the Media Parallel Encoder 605 are stored in the file system 730. The Mediamply Parallel encoder 605 can be implemented in Python and can rely on web services (such as Twisted or Django), PhantomJS, and FFmpeg. Monit 750 corresponds to a monitoring block that can ensure that the process running the “Media Parallel encoder” keeps running at all times and does not stop upon failure. Additional blocks that can be included in Mediaplug are RSYNC 742 and SSH 744. These blocks can be used to ensure synchronization and updates of new media files coming from the cloud. The RSYNC block uses the “rsync” protocol and program over ssh (Secured Socket Layer Shell) to download media from the “Mediamply Cloud” and synchronize multimedia files that are newly updated and could be part of particular Channel ID and a Playlist Name. Each new file synchronized with the Mediamply cloud has a Media ID value which the cloud can assign, and include additional metadata information such as “Artist” and “Author.” The “Mediamply Parallel Encoder” also may receive requests from other components such as getStatus or StartEncoding, indicating what file is being encoded, its progress, and what other files are in the queue for encoding.

[0047] In some embodiments, the information from getStatus or StartEncoding can be generated using a JSON message retrieved upon a request via HTTP GET to the Mediamply Parallel Encoder. A graphical user interface can then be used to plot the status of each song being encoded or provide previews of the videos being generated. Below is one non-limiting example of a JSON response made by the “Mediamply Parallel Encoder” service:

```
{ "song_encoded" : "ts", "artist": "Madonna", "duration": 0, "exists_on_disk": True, "genre": "Pop", "title": "Like a Virgin", "music_id": "1082863" }
```

[0048] Response regarding the status for a song being encoded or a list of songs being encoded, as follows:

```
{ "music_id": "109281", "encoding": "78%", "output_file": "/var/www/egllacast/pop/109281-abcdef-uuid.ts", "thumbnail": "http://mediamplify.com/images/abcdef-uuid.png" }
```

[0049] In some embodiments, there are two possible TCP/IP sockets open for listening used by the Caching component of the Mediaplugin. A) Port 80 (as an example), or the standard HTTP port, used to retrieve content, view video content generated, update/delete cached files, and access the playlists, and B) Port 9553 (as an example), or the standard Mediamplify Parallel encoder port, used to monitor and review status of the songs being encoded, the data being collected, and all other related activities with encoding. Via this port, encoding/transcoding can be started or stopped.

[0050] Similarly, the “Mediaplugin” components labeled “Multicast-01” and “Multicast-02” can also provide an HTTP interface to access the current song being played or being multicast via the HTTP Server 770. For example, the HTTP Server may run a PHP or Python script that will return the current song being played by the streamer. The streamer block 768 can connect to the caching server via HTTP or RTSP protocols. The implementation of this block can be done using a combination of FIG-8 instructions and using multicasting services available in VLC or FFmpeg (e.g. multicast, or ttools / tsplay).

[0051] One function of the streamer 768 is to read the files encoded by the caching unit, process those for multicasting and creating the MPEG Transport Stream multicast packets sent via the Ethernet port. Additionally, the multicast-01 and multicast-02 blocks contain a “Recording” function 790, which is in charge of recording the multicasting streams and recording for later use in case of failure on the system. This operates by listening into the UDP (User Datagram Protocol) multicast address of each individual channels being broadcasted, and recording the output into a file. This file is then stored and made accessible for future use. Monit 764 can maintain the streamer process running at all times throughout a regular broadcasting cycle.

[0052] FIG. 8 illustrates an example method that can be performed by the streamer module in the Mediaplug. In one embodiment, the streamer can perform functions that include: connect to the caching unit; retrieve generated videos per playlist; determine if unit is working in fault-tolerant mode; playback pre-recorded audio if a failure is detected; and record units own output or any other streamer output if connected to switch or hub.

[0053] Turning to the method from FIG. 8, at step 805, the streamer reads the multicast address associated to the channel being broadcasted, in order to generate IGMP (Internet Group Management Protocol) messages and establish a multicast group (e.g. 239.0.0.1:8001). The channel name is also initialized at 810. This value can be used to retrieve the proper content from the Caching server. In one embodiment, a configuration table can be created with tuples: <ChID>, <Channel Name>, <Multicast Address>, <Multicast Port>, such that no duplicates are used or created. Automation software can create these configuration tables and automate the process of creating all streamer calls. A streamer method can be called (e.g. from /etc/init.d/) at boot time and monitored with a tool such as Monit. Once the configuration is known, the streamer will check 850 if there are already multicasting transport streams generated by any other multicast component and avoid collisions. If such multicast data is detected, a delay can be used to delay a new attempt to check on that particular multicast group 860. Hence this block indicates “Wait <Time>” or stop all processing for the amount of <Time> recommended by the specification. For example, the time for delay can be the “Main source” of input less the amount of time for receiving input from a backup server. During initialization, if the same multicast address is used to broadcast main and backup, the one with less amount of time delay will be first, followed by the “Backup.” In cases were a hot spare is used, or two different multicast addresses can be in use, one for main and the other one for backup, then this step may be optional.

[0054] Once it is determined that there are no elements multicasting at the same address, the streamer will check if the Caching server is “alive” 815. This can be performed in multiple ways, for example an HTTP Request must not generate a 404 or 403 error, but instead a successful 202 value. Likewise, ping requests can also be used before making an HTTP GET call to identify if the caching server is present and available. In the case that there are no ping responses, a timeout will trigger a failure and a pre-recorded content 820 will be played or sent to the multicast address and port of record. Recordings can be scheduled daily for an extended period of time (e.g. 8 hours or

more). These recordings can store the recorded file in a temporary folder and then move that file over to the playback folder where streamer can read it.

[0055] If it is determined that the caching server is functioning properly, then there are three types of streams that can be sent to the multicast address and port:

[0056] HTTP Live Streaming (HLS) a multi-segment stream usually defined by extension M3U8, containing a set number of segments for a real-time stream source (Video/audio)

[0057] HTTP/RTSP file playlist, this means that one or many files are read from the caching server, usually defined by extension M3U or PLS

[0058] RTSP stream, this could be constant stream similar to HTTP Live Streaming (HLS) but using an RTSP protocol instead of HLS stream.

[0059] When multiple files are part of a playlist, the bit-rate may vary between playlist files. Different bit-rates among files in a playlist could cause problems in non-CBR (Constant Bit Rate) systems. To avoid such problems, the Mediaplug can maintain the stream at the bit rate of the previous stream by adding null MPEG TS packets at the same rate as the previous media file was being sent over the multicast port. This will maintain appropriate bit-rate for playlists.

[0060] In RTSP service, streaming occurs by writing the media content to a named pipe or a FIFO file and allowing the RTSP service to read from that file and generate an RTSP stream. As such, in HLS and RTSP Streaming, the caching server knows the filename of the file being streamed. When the file is streamed from via playlist, both the caching and multicast unit know the name of the file being streamed, as the multicast server can then request from the caching server the metadata associated with the file name being streamed.

[0061] Accordingly the present technology can accommodate both cases and retrieve the current file name being streamed as a JSON response. The response can identify the content displayed or played back at the end-user's set top box.

[0062] If HLS is used for streaming 818, the streamer will connect to the proper M3U8 file 820 to pull all the segments corresponding to the live playlist file on the M3U8 stream. Programs and libraries such as FFMPEG or VLC can then be used to encapsulate the stream feed to an MPEG TS

and multicast it to the pre-programmed multicast address and port. Similarly, if an RTSP stream 825 is used, the same process takes place at 830 using the RTSP as a protocol instead of HTTP.

[0063] If a list of files in a playlist 832 is in use “M3U,” the list can be obtained using an HTTP GET request made to the caching server. Each file can then be streamed to the multicast address and port of record 838 until all elements of the playlist are completed and played back 835.

[0064] In some instances, metadata can be added to the stream as an additional PID (Program Identifier) in the MPEG Transport Stream. If metadata is needed 841 then it will be inserted 842 here in accordance with FIG. 9.

[0065] For example, the metadata added could be as simple as a string containing Artist, Name, or other information, or as complex as DCII Text (DigiCipher version 2, as specified by Motorola), MPEG TS Control messages (Two-way), or any other metadata or PID that can be inserted into the stream being sent to the multicast address and port.

[0066] FIG. 9 illustrates an example method used to insert a special data packet into the stream being written to the multicast address, without making use of timing information. Therefore, the metadata can be inserted such that it does not have timing dependency. Alternatively, certain type of metadata such as subtitles or lyrics may need to be inserted only at certain times so that it is synchronized with the video data.

[0067] The sample MPEG TS packet shown in 902 and 905 corresponds to the metadata inside the packet. This matches standard MPEG TS packet structure and may vary depending on the type of metadata being added to the stream.

[0068] The method to insert the packet starts by reading the MPEG TS file retrieved from the caching server 910. If metadata corresponds to only song information, this information can be added at uniform times. Non-uniform timing inclusions can also be done by adding a table that includes the time and the metadata content added to the stream 915. This metadata can be retrieved from the Caching unit using an HTTP Get request directed to the caching server 918 and may include artist name, title of song, or any other information 920.

[0069] Creation of the MPEG Packet(s) 925 to be inserted at the appropriate times, which will set the places with those packets, will be inserted in the MPEG TS. Modify the PMT (Program Management Table) of the generated file and include the PID being inserted into the MPEG TS 930. At step 932, an audio PID may include a metadata PID of type DCII Text, which is added to the stream.

[0070] For each timing or location where the PID needs to be inserted 935, the method can insert those packets and generate a buffer that can be sent to the multicast address as in illustrated in FIG. 8.

[0071] As described above, the disclosed technology can be implemented using a set of modules included in the Mediaplug apparatus, which can be implemented using one or more servers accordingly. Alternatively, virtualization environments such as VMWare or Xen (FIG-9) can include a system and architecture that can be used to host all the Mediaplug functionality in a virtualized environment using a single server with multiple GbE ports.

[0072] The illustration in FIG. 10 shows a configuration of three virtual machines used for implementing the Mediaplug. Caching 1030 and its respective Ethernet port 1032, Multicast-01 1020 with two virtual Ethernet ports 1022 and 1024, and Multicast-02 1010, with two Ethernet ports 1012 and 1014. There are three bridges that include 1007, 1008, and 1009. The multicast Ethernet ports 1024 and 1014 are bridged with eth1 1004 and eth2 1003 respectively via bridge 1009 and bridge 1008, respectively. That is, the same content generated at 1024 can be forwarded via the bridge 1009 to the physical interface eth1 1004 in the hardware. The vSwitch 1045 or the virtual switch between the two bridged interfaces 1008 and 1009 permits the two virtual machines of Multicast-01 1010 and Multicast-02 1020 to record each other and monitor their activity.

[0073] To achieve concurrency and proper execution in a cloud environment, the Mediaplug can use the example method shown in FIG. 11. Once a create unit command is issued 1105, provisioning of the metadata information and proper IP Address is provided for that particular instance 1110. Once an IP Address and metadata has been chosen for the unit, the server can be allocated in the cloud and the instance can be created using CloudStack or OpenStack tools and services 1115. The instance is then allocated and runs in the proper node in the cloud 1120. Configuration of the assigned IP, Netmask, and VPN credentials are loaded at 1125. Finally,

certificate information is uploaded 1130 as well as all services run to enable the unit for execution of its caching functions, multicasting functions, or both.

[0074] FIG. 12 illustrates a conventional system bus computing system architecture 1200 such as can be used in Mediaplug 110. Those of ordinary skill in the art will appreciate that other system architectures are also possible.

[0075] In computing system architecture 1200 the components of the system are in electrical communication with each other using a bus 1205. Example system 1200 includes a processing unit (CPU or processor) 1210 and a system bus 1205 that couples various system components including the system memory 1215, such as read only memory (ROM) 1220 and random access memory (RAM) 1225, to the processor 1210. The system 1200 can include a cache of high-speed memory connected directly with, in close proximity to, or integrated as part of the processor 1210. The system 1200 can copy data from the memory 1215 and/or the storage device 1230 to the cache 1212 for quick access by the processor 1210. In this way, the cache can provide a performance boost that avoids processor 1210 delays while waiting for data. These and other modules can control or be configured to control the processor 1210 to perform various actions. Other system memory 1215 may be available for use as well. The memory 1215 can include multiple different types of memory with different performance characteristics. The processor 1210 can include any general purpose processor and a hardware module or software module, such as module 1 1232, module 2 1234, and module 3 1236 stored in storage device 1230, configured to control the processor 1210 as well as a special-purpose processor where software instructions are incorporated into the actual processor design. The processor 1210 may essentially be a completely self-contained computing system, containing multiple cores or processors, a bus, memory controller, cache, etc. A multi-core processor may be symmetric or asymmetric.

[0076] To enable user interaction with the computing device 1200, an input device 1245 can represent any number of input mechanisms, such as a microphone for speech, a touch-sensitive screen for gesture or graphical input, keyboard, mouse, motion input, speech and so forth. An output device 1235 can also be one or more of a number of output mechanisms known to those of skill in the art. In some instances, multimodal systems can enable a user to provide multiple types of input to communicate with the computing device 1200. The communications interface 1240 can

generally govern and manage the user input and system output. There is no restriction on operating on any particular hardware arrangement and therefore the basic features here may easily be substituted for improved hardware or firmware arrangements as they are developed.

[0077] Storage device 1230 is a non-volatile memory and can be a hard disk or other types of computer readable media which can store data that are accessible by a computer, such as magnetic cassettes, flash memory cards, solid state memory devices, digital versatile disks, cartridges, random access memories (RAMs) 1225, read only memory (ROM) 1220, and hybrids thereof.

[0078] The storage device 1230 can include software modules 1232, 1234, 1236 for controlling the processor 1210. Other hardware or software modules are contemplated. The storage device 1230 can be connected to the system bus 1205. In one aspect, a hardware module that performs a particular function can include the software component stored in a computer-readable medium in connection with the necessary hardware components, such as the processor 1210, bus 1205, display 1235, and so forth, to carry out the function.

[0079] It can be appreciated that example system 1200 can have more than one processor 1210 or be part of a group or cluster of computing devices networked together to provide greater processing capability.

[0080] For clarity of explanation, in some instances the present technology may be presented as including individual functional blocks including functional blocks comprising devices, device components, steps or routines in a method embodied in software, or combinations of hardware and software.

[0081] Any of the steps, operations, functions, or processes described herein may be performed or implemented by a combination of hardware and software modules, alone or in combination with other devices. In an embodiment, a software module can be software that resides in memory of a client device and/or one or more servers of a content management system and perform one or more functions when a processor executes the software associated with the module. The memory can be a non-transitory computer-readable medium.

[0082] In some embodiments the computer-readable storage devices, mediums, and memories can include a cable or wireless signal containing a bit stream and the like. However, when mentioned,

non-transitory computer-readable storage media expressly exclude media such as energy, carrier signals, electromagnetic waves, and signals per se.

[0083] Methods according to the above-described examples can be implemented using computer-executable instructions that are stored or otherwise available from computer readable media. Such instructions can comprise, for example, instructions and data which cause or otherwise configure a general purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. Portions of computer resources used can be accessible over a network. The computer executable instructions may be, for example, binaries, intermediate format instructions such as assembly language, firmware, or source code. Examples of computer-readable media that may be used to store instructions, information used, and/or information created during methods according to described examples include magnetic or optical disks, flash memory, USB devices provided with non-volatile memory, networked storage devices, and so on.

[0084] Devices implementing methods according to these disclosures can comprise hardware, firmware and/or software, and can take any of a variety of form factors. Typical examples of such form factors include laptops, smart phones, small form factor personal computers, personal digital assistants, and so on. Functionality described herein also can be embodied in peripherals or add-in cards. Such functionality can also be implemented on a circuit board among different chips or different processes executing in a single device, by way of further example.

[0085] The instructions, media for conveying such instructions, computing resources for executing them, and other structures for supporting such computing resources are means for providing the functions described in these disclosures.

[0086] Although a variety of examples and other information was used to explain aspects within the scope of the appended claims, no limitation of the claims should be implied based on particular features or arrangements in such examples, as one of ordinary skill would be able to use these examples to derive a wide variety of implementations. Further and although some subject matter may have been described in language specific to examples of structural features and/or method steps, it is to be understood that the subject matter defined in the appended claims is not necessarily limited to these described features or acts. For example, such functionality can be distributed

differently or performed in components other than those identified herein. Rather, the described features and steps are disclosed as examples of components of systems and methods within the scope of the appended claims.

CLAIMS

What is claimed is:

1. A computer-implemented method comprising:
 - receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items;
 - obtaining content corresponding to the plurality of multimedia items from at least one website offering the content in at least one first format;
 - generating each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is compatible with the at least one content provider;
 - assembling the at least one media stream using each of the plurality of multimedia items generated; and
 - providing the at least one media stream to the content provider for broadcast on the broadcast media channel.
2. The method of claim 1, wherein the obtaining comprises:
 - retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item.
3. The method of claim 2, wherein the generating comprises:
 - combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items.
4. The method of claim 2, wherein the retrieving of the plurality of screen captures comprises obtaining the plurality of screen captures from a playback of a video on the at least one website.
5. The method of claim 4, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of a song title, an artist, and a music genre.

6. The method of claim 1, further comprising:
identifying the at least one website based on a channel identifier associated with the broadcast media channel.
7. The method of claim 1, further comprising:
querying the content provider to determine the second format, wherein the second format corresponds to a Moving Picture Experts Group (MPEG) format.
8. The method of claim 3, further comprising:
detecting a change at the at least one website corresponding to at least one of the plurality of multimedia items;
in response to detecting the change, retrieving a new plurality of screen captures from the at least one website for the at least one of the plurality of multimedia items; and
reassembling the at least one of the plurality of multimedia items using the new plurality of screen captures to yield an updated multimedia item.
9. The method of claim 1, wherein the content provider is a cable television operator or a satellite television operator.
10. The method of claim 1, wherein providing the at least one media stream to the content provider comprises streaming the at least one media stream to an MPEG multiplexer associated with the content provider.
11. The method of claim 1, further comprising:
provisioning, on at least one server, at least one virtual machine for performing the receiving, obtaining, generating, assembling, and providing.
12. A system comprising:
at least one processor;
a computer-readable storage medium having stored therein instructions which, when executed by the processor, cause the at least one processor to perform operations comprising:

receive, from a content provider, a request for a multimedia content for playback on a broadcast media channel;

retrieve, from a cloud based service offering the multimedia content in a first format that is not compatible with a required format associated with the content provider, a plurality of screen captures corresponding to a video component of the multimedia content and at least one audio file corresponding to an audio component of the multimedia content;

merge the plurality of screen captures with the at least one audio file to create the multimedia content in the required format; and

send the multimedia content to the content provider.

13. The system of claim 12, further comprising:

retrieve a video from the cloud based service, wherein the plurality of screen captures correspond to a plurality of static images obtained from the video.

14. The system of claim 12, further comprising:

select the multimedia content from the cloud based service based on a music genre associated with the broadcast media channel.

15. The system of claim 12, wherein the request for the multimedia content comprises a request for a plurality of multimedia streams for playback on a plurality of broadcast media channels.

16. The system of claim 12, wherein the multimedia content is sent to a broadcast internet protocol (IP) address associated with the content provider.

17. A non-transitory computer-readable storage medium having stored therein instructions which, when executed by a processor, cause the processor to perform operations comprising:

receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items;

obtaining content corresponding to the plurality of multimedia items from at least one website offering the content in at least one first format;

generating each of the plurality of multimedia items in a second format based on the content obtained from the at least one website, wherein the second format is compatible with the at least one content provider;

assembling the at least one media stream using each of the plurality of multimedia items generated; and

providing the at least one media stream to the content provider for broadcast on the broadcast media channel.

18. The non-transitory computer-readable storage medium of claim 17,

wherein the obtaining comprises retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item; and

wherein the generating comprises combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items.

19. The non-transitory computer-readable storage medium of claim 17, wherein the at least one media stream corresponds to at least one of an HTTP live stream (HLS), an HTTP playlist, and a Real-time Streaming Transport (RTSP) stream.

20. The non-transitory computer-readable storage medium of claim 17, storing additional instructions which, when executed by the processor, result in operations comprising:

detect a network failure affecting connectivity with the at least one website; and

in response, provide a previously recorded media stream to the content provider.

21. The non-transitory computer-readable storage medium of claim 17, wherein assembling the at least one media stream comprises inserting at least one MPEG packet including metadata corresponding to the multimedia item.

22. A computer-implemented method comprising:
- provisioning, on at least one server, a first virtual machine configured to obtain and cache multimedia content from at least one cloud-based service;
 - provisioning, on the at least one server, a second virtual machine communicatively coupled to the first virtual machine and to a cable operator, wherein the second virtual machine is configured to multicast the multimedia content from the first virtual machine to the cable operator; and
 - provisioning, on the at least one server, a third virtual machine communicatively coupled to the first virtual machine, the second virtual machine, and the cable operator, wherein the third virtual machine is configured to monitor an output from the second virtual machine to determine if a failure condition has occurred.
23. The method of claim 22, wherein provisioning the first virtual machine, the second virtual machine, and the third virtual machine comprises:
- configuring at least one digital certificate to provide access to the multimedia content; and
 - configuring at least one internet protocol (IP) address corresponding to a multicast address for the cable operator.

FIG 1 -- Functional block diagram illustrating an exemplary headend (MSO) connected to the Mediampify cloud

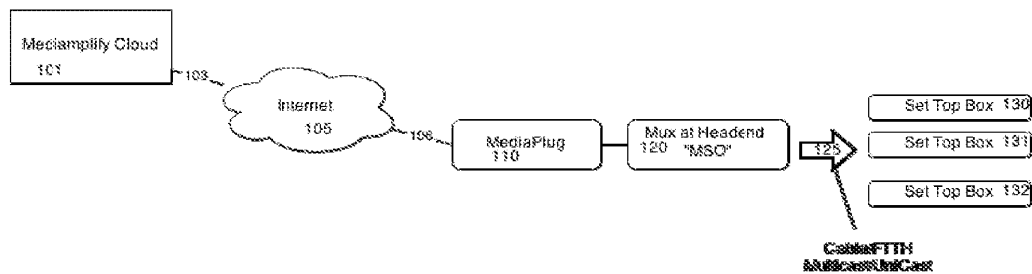


FIG 2 - System collocated in the cable operator MSO for delivery of multimedia streams

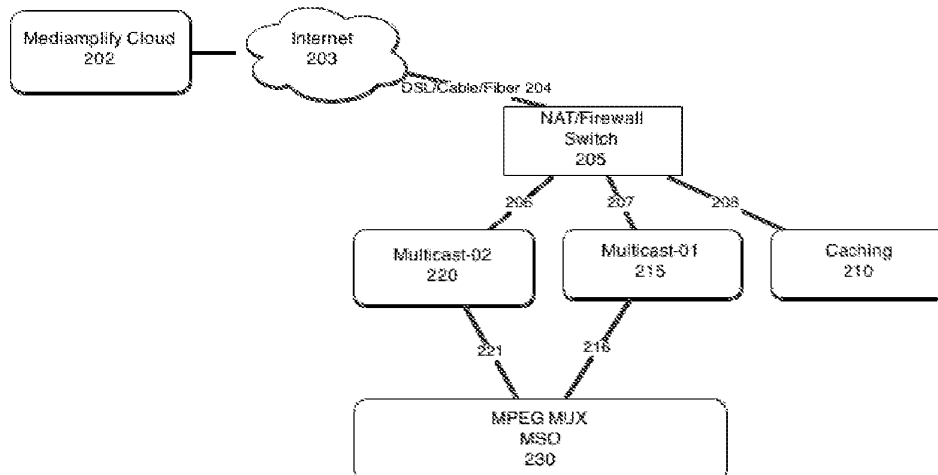


FIG 3. Initialization Method for All "Mediaplug" components (Caching, Multicast-01, Multicast-02)

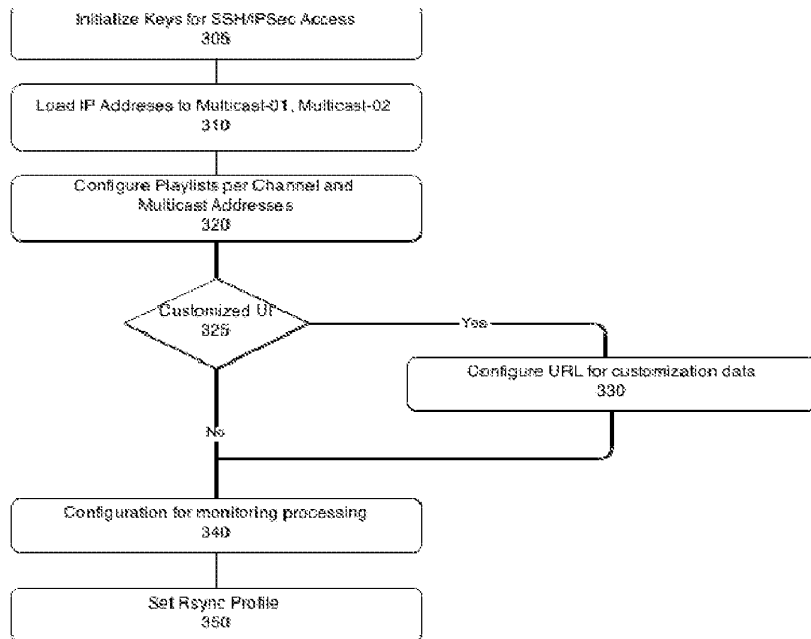


FIG 4 - Get List of files to playback/broadcast to the MSO system

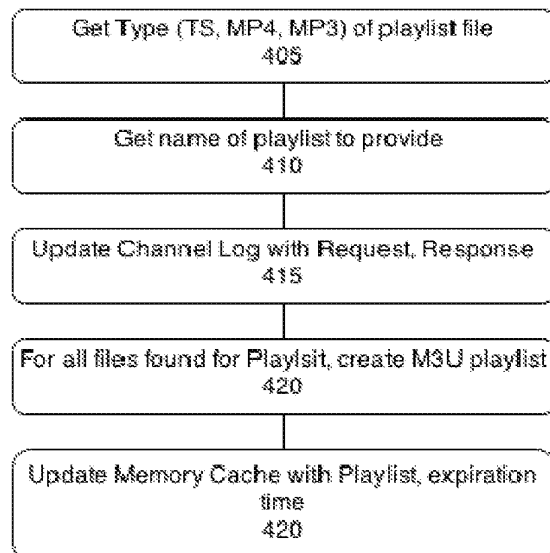


FIG 5 . Method for encoding and storing data in "Mediaplug" Caching (parallel transcode process)

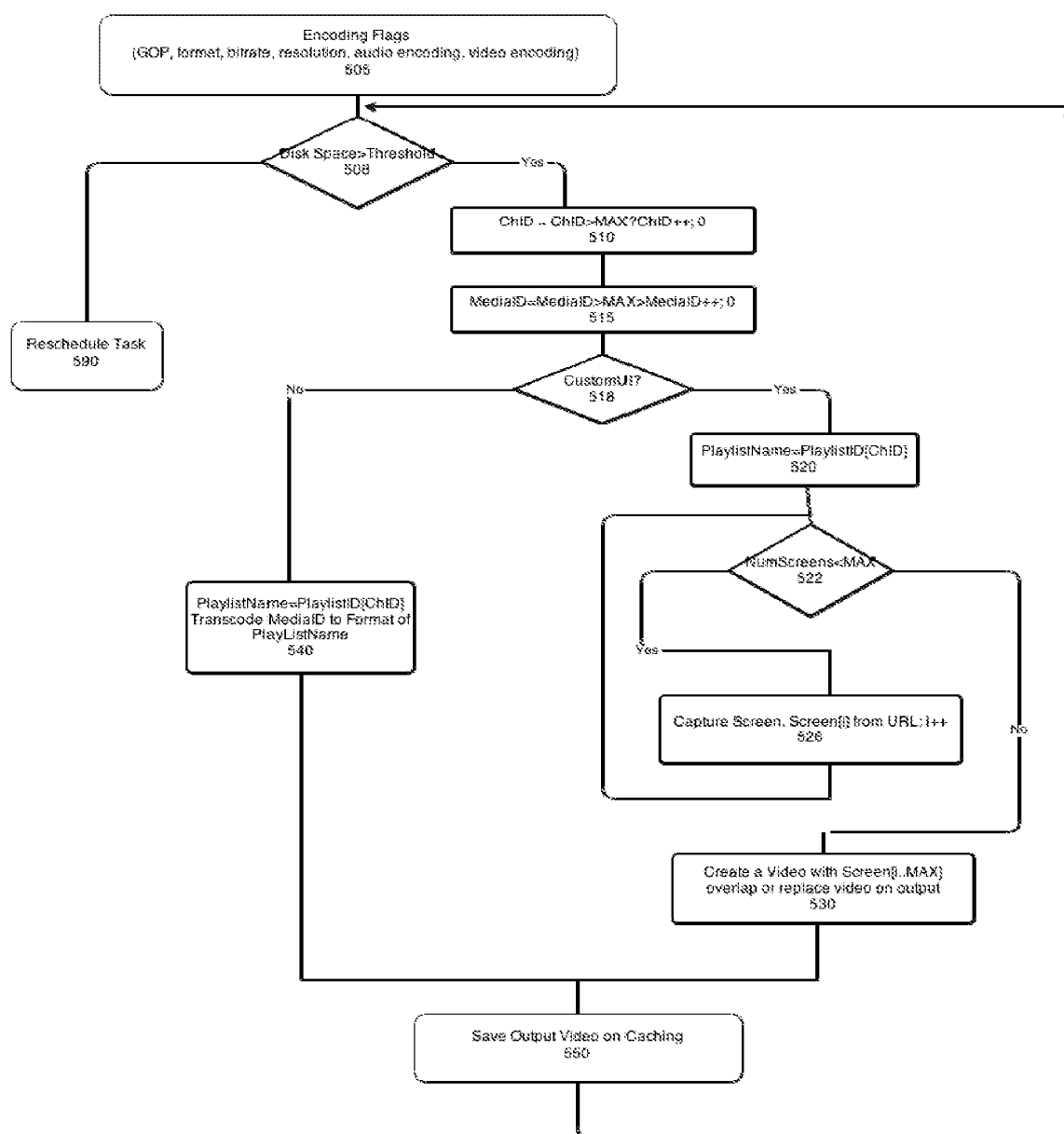


FIG. 6

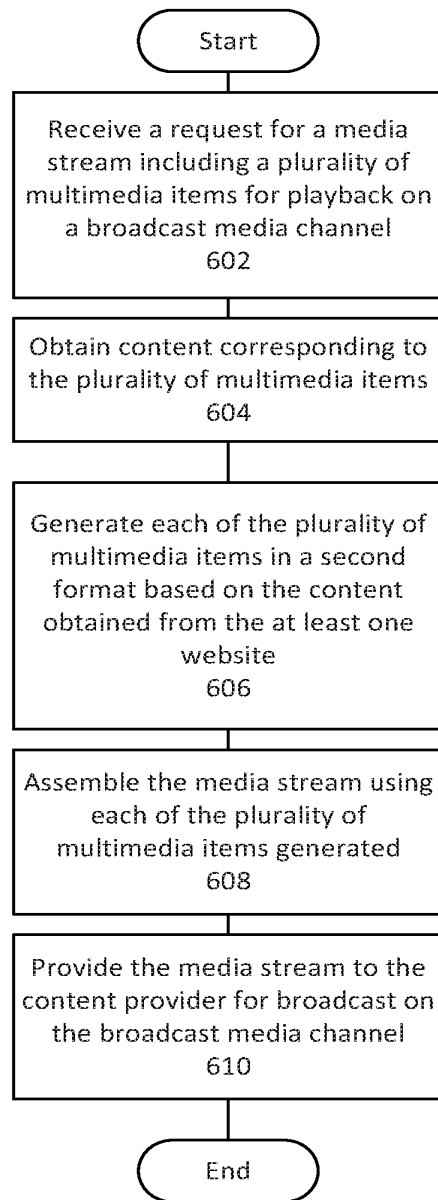
600
→

FIG. 2 Block diagram for Mediaplugin (Caching, Multicast-01 and Multicast-02)

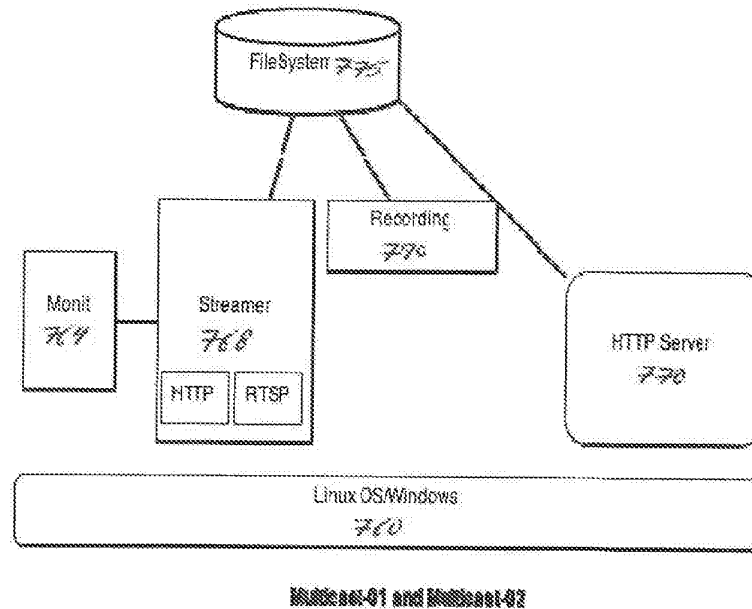
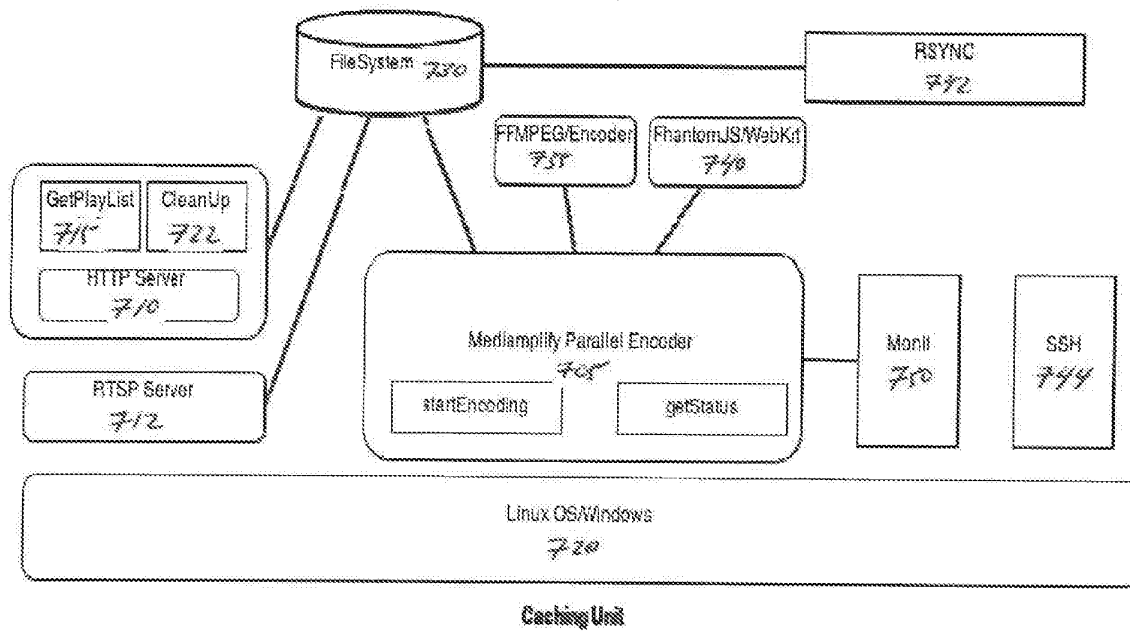


FIG 8 Method executing at Mediaplug Multicast-01 and Multicast-02 components

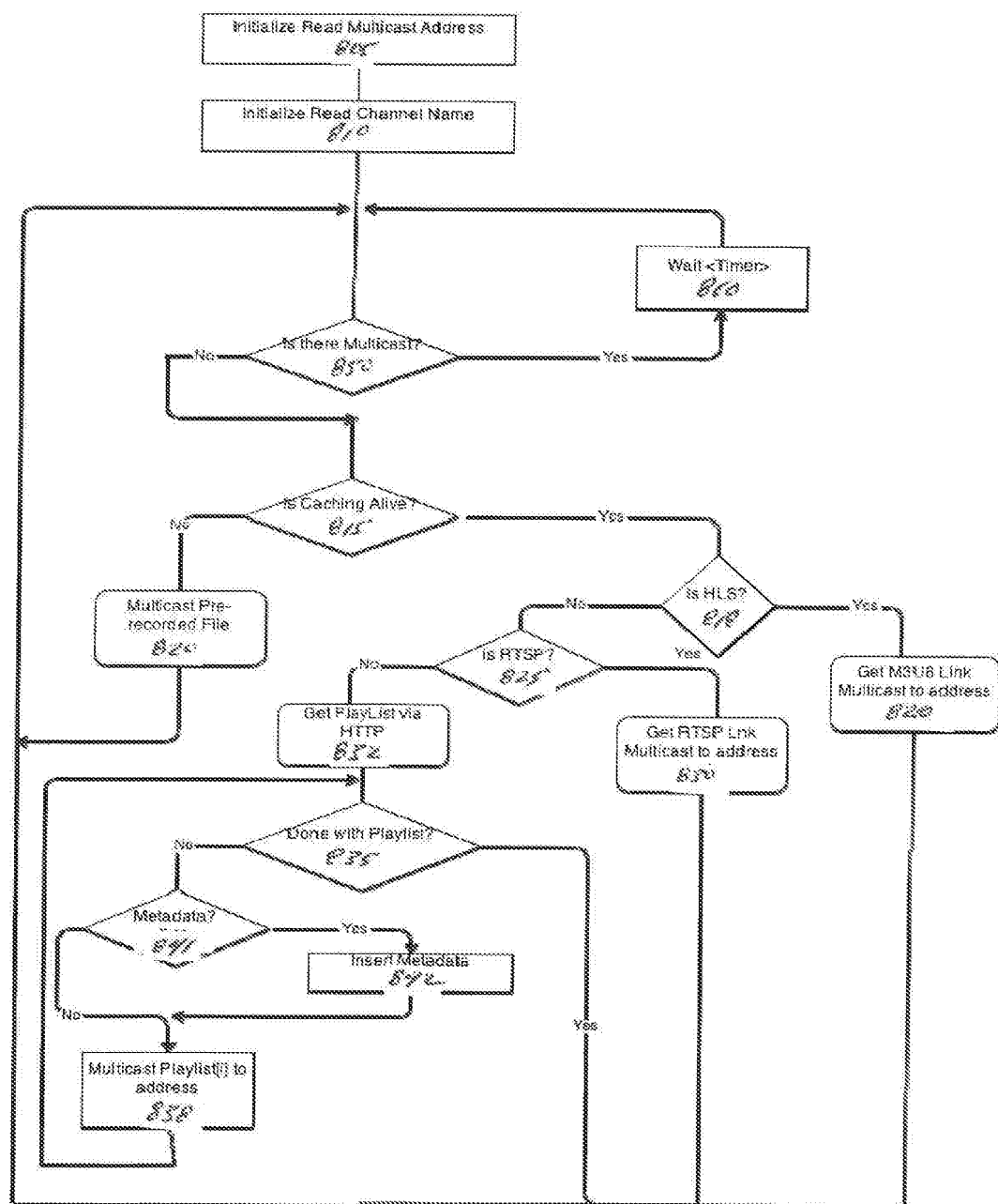


FIG. 7 Method to insert metadata into an MPEG TS

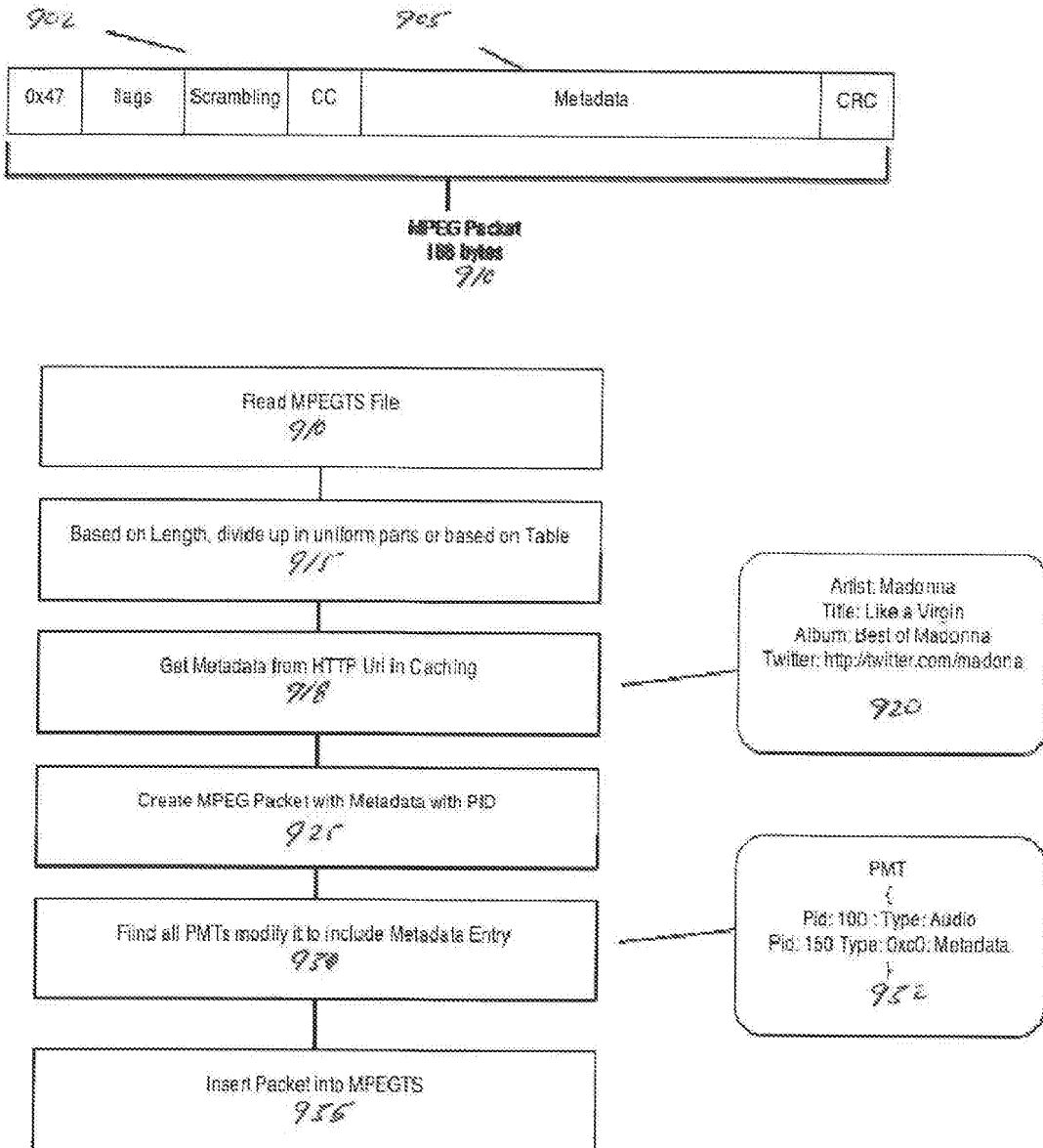


FIG 16 Virtualized version of the Mediaplug (Caching, Multicast-01, and Multicast-02)

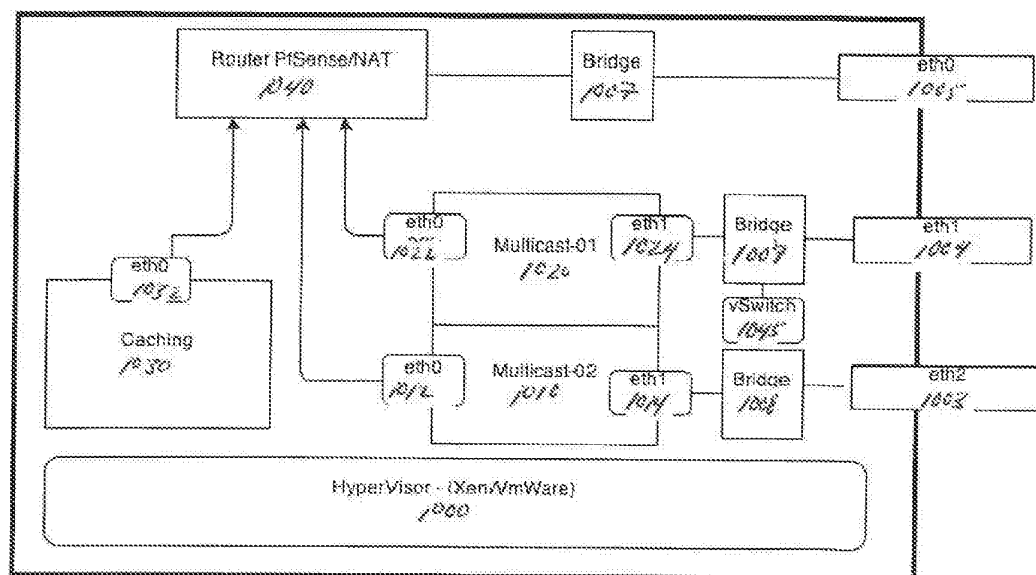


FIG 17 Method to initialize virtual mediaplug components

