IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

(Attorney Docket No. 10-406-CON-REI)

First Named Inventor:	Hans Maarten Stokking
Application No.:	16/413,052
Filed:	05/15/2019
Title:	METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM
Art Unit:	3992
Confirmation No.:	9330
Examiner:	Heneghan, Matthew E.

FILED VIA PATENT CENTER ON JANUARY 7, 2025

RESPONSE AFTER FINAL

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

Applicant provides this submission in response to the final Office Action dated September 3, 2024. Applicant submits the following claims and remarks. The claims begin on page 2, and the remarks begin on page 8.

Applicant generally authorizes the Office to charge any underpayment or credit any overpayment to Deposit Account No. 132490, and to treat any communication in this matter that requires an extension of time as incorporating a request for such an extension.

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AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims:

1. (Currently Amended) [A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:] A system comprising a first terminal and a second terminal, configured for communicating with a gateway, and wherein:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information establishes a first multimedia session between the first terminal and the gateway according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes a second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream,

wherein the first protocol, the second protocol, and the third protocol are all different.

2. (Currently Amended) The [method] system according to claim 1, wherein the exchange of the first multimedia session information comprises:

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the gateway providing to the first terminal at least part of the second multimedia session information.

3. (Currently Amended) The [method] system according to claim 1, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. (Currently Amended) The [method] system according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. (Currently Amended) The [method] system according to claim 4, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. (Currently Amended) The [method] system according to claim 5, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

7. (Canceled)

8. (Currently Amended) The [method] system of claim 1, wherein the first multimedia stream is the second multimedia stream.

9. (Currently Amended) The [method] system of claim 1, wherein the first protocol is a peer-to-peer protocol.

10. (Currently Amended) The [method] system of claim 1, wherein the third protocol is a client-server protocol, and wherein the second [receiving] terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

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11. (Currently Amended) The [method] system of claim 1, wherein the trigger comprises a network address of the gateway.

12. (Currently Amended) The [method] system of claim 11, wherein the network address is a URI or a URI reference.

13. (Canceled)

14. (Canceled)

15. (Currently Amended) The [method] system of claim 1, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

16. (Currently Amended) An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information establishes a first multimedia session between the first terminal and the gateway according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes a second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates; and

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using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal,

wherein the first protocol, the second protocol, and the third protocol are all different.

17. (Currently Amended) A gateway comprising:

a communication interface; and

memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information establishes a first multimedia session according between the first terminal and the gateway to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, [wherein the third protocol is different from the first protocol,] wherein the exchange of the second multimedia session information establishes a second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates,

wherein the first protocol, the second protocol, and the third protocol are all different.

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18. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to connect to [a] the first terminal supporting [a] the first protocol and to [a] the second terminal supporting [a] the second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

wherein, in relation to the first protocol, the first terminal is an originating user-side SIP client,

wherein the gateway acts as a terminating SIP client,

wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from [the user] the first terminal and to provide the first terminal with multimedia session information,

wherein, in relation to the second protocol, the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user, and

[wherein the second terminal uses RTSP for session control, and]

wherein the gateway is further configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to transmit a notification message to the second terminal in response to an invitation of the first terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. (Previously Presented) The gateway of claim 17, wherein the gateway is [embedded] further configured to operate in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), [wherein the third protocol is Real Time Streaming Protocol (RTSP), the IMS network architecture comprising a service-control-function component and a media-function component,] wherein [the] memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by [the] a service-control-function component within the IMS network architecture;

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triggering the second terminal is controlled by [the] a service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by [the] a media-function component within the IMS network architecture.

21. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to associate the first multimedia session information and the second multimedia session information with each other.

22. (Original) The gateway of claim 17, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

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REMARKS

I. Summary of the Office Action

The Office Action dated September 3, 2024 ("the Office Action") made the following objections and/or rejections, each of which is addressed in more detail below:

Claims 1, 16, 17, and 23-27 have been objected to based on an alleged informality.

Claims 23, and 27 have been rejected under 35 U.S.C. 103 as being unpatentable over CN Patent Application Publication No. CN1393090 (*Mostafa*).

Claims 1-6, 8-12, and 15-22 have been indicated to be allowable.

II. Interview Summary

Applicant thanks Examiner Heneghan for the telephonic interview on December 4, 2024 ("the Interview") with the Applicant's representative Matthew Ridsdale (Reg. No. 56,832). Applicant appreciates the Examiner's time in discussing the present application, the pending claims, the current rejections, and the cited art. During the course of the Interview, amendments and changes to the statutory class of the claims was discussed. Applicant submits that the substance of the Interview, is reflected within the amendments to the claims and the remarks presented herein.

III. Status of the Claims

The present application includes claims 1-6, 8-12, 15-23, and 27 with claims 24-26 having been withdrawn. By this Response, claims 1-6, 8-12, 15-16, and 17 have been amended, and claims 23-27 have been cancelled without prejudice. Support for these amendments may be found at least a col. 12, lines 20-33, and FIGS. 5(a)-5(c) of the specification. Applicant respectfully submits that no new matter has been added by these amendments. Applicant expressly reserves the right to pursue the subject matter of the previously presented claims in a continuing application.

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IV. Claim Objections

The Office Action has objected to claims 1, 16, 17, and 23-27 based on an alleged informality. In light of the amendment to claims, Applicant respectfully submits that the pending objection has been rendered moot. Accordingly, Applicant submits that claims 1-6, 8-12, and 15-22 are in condition for allowance. Applicant respectfully requests reconsideration and withdrawal of the pending objections.

V. Claim Rejections – 35 U.S.C. 102

Applicant now turns to the rejection of claims 23, and 27 under 35 U.S.C. 102 as being unpatentable over *Mostafa*. Applicant respectfully submits that the proposed combination does not teach or suggest the entirety of the features recited in the pending claims for at least the reasons discussed below. However, in order to expedite prosecution, the subject matter of claims 23 and 27 have been cancelled by this Response. Accordingly, Applicant submits that the pending rejections based on *Mostafa* have been rendered moot.

Applicant respectfully submits that claims 1-6, 8-12, 15-22 are pending and patentable over any combination of the relied upon references. Withdrawal and reconsideration of the pending rejections is hereby respectfully requested.

VI. Conclusion

Applicant submits that all of the stated grounds of objection and rejection have been respectfully traversed, accommodated, or rendered moot. Applicant therefore submits that the present application is in condition for allowance. If the Examiner believes that further dialogue would expedite consideration of the application, the Examiner is invited to contact the undersigned at 312.913.0001.

Respectfully submitted,
McDonnell Boehnen Hulbert and Berghoff LLP

Date: January 7, 2025

By: /Matthew T. Ridsdale/
Matthew T. Ridsdale
Reg. No. 56,832

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UNITED STATES
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Alexandria, VA 22313 - 1450
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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/413,052	**01/07/2025 01:34:06 PM Z ET**	**10-406-CON-REI**

Title of Invention

Method and System for Transmitting a Multimedia Stream

Application Information

APPLICATION TYPE	Utility - Reissue	PATENT #	-
CONFIRMATION #	9330	FILED BY	KATHLEEN CHURAY
PATENT CENTER #	68629381	AUTHORIZED BY	Matthew Ridsdale
CUSTOMER #	20306	FILING DATE	05/15/2019
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Hans Maarten Stokking

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 1002	**E202517D34475807**	**Matthew Ridsdale**

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
132490	**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)**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1252	EXTENSION FOR RESPONSE WITHIN SECOND MONTH	640.00	1	640.00
			TOTAL AMOUNT:	**$640.00**

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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

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PTO/SB/22 (12-22)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 10-406-CON-REI

Application Number: 16/413,052

Filed: 2019-05-15

For: Method and System for Transmitting a Multimedia Stream

Art Unit: 3992

Examiner: Matthew E. Heneghan

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
☐ One month (37 CFR 1.17(a)(1))	$220	$88	$44	$
☑ Two months (37 CFR 1.17(a)(2))	$640	$256	$128	$ 640.00
☐ Three months (37 CFR 1.17(a)(3))	$1,480	$592	$296	$
☐ Four months (37 CFR 1.17(a)(4))	$2,320	$928	$464	$
☐ Five months (37 CFR 1.17(a)(5))	$3,160	$1,264	$632	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 132490.

☑ Payment made via EFS-Web.

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.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. 37 CFR 3.73(b) statement is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration number 56,832.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Matthew T. Ridsdale/ — Signature

2025-01-07 — Date

Matthew T. Ridsdale — Typed or printed name

312.913.0001 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

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CUSTOMER #	20306	FIRST NAMED INVENTOR	Hans Maarten Stokking
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Matthew Ridsdale

Documents

TOTAL DOCUMENTS: 4

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
10-406-CON-REI Resp to Final OA dated 09-03-2024.pdf		9	-	123 KB
10-406-CON-REI Resp to Final OA dated 09-03-2024-A.NE.pdf	(1-1)	1	Response After Final Action	76 KB
10-406-CON-REI Resp to Final OA dated 09-03-2024-CLM.pdf	(2-7)	6	Claims	85 KB
10-406-CON-REI Resp to Final OA dated 09-03-2024-REM.pdf	(8-9)	2	Applicant Arguments/Remarks Made in an Amendment	108 KB
10-406-CON-REI Extension of Time.pdf		2	Extension of Time	442 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
10-406-CON-REI Resp to Final OA dated 09-03-2024.pdf	B12AEA1BC6DB53A73385D7C9A4013A52EE345C0616E4F7B0 8ED74F6F8ECF889747AE029A4053A2DA97B173278D8F32FF7 EE4304985122CE7F74C20E5DD816852
10-406-CON-REI Resp to Final OA dated 09-03-2024-A.NE.pdf	975F57C8236FFA32693EC977564B55100B64C0CC13BACCAC 8E98D8225FA5E36DF1ACAA60BD2ACB5267C8EFD4EE412FB D77DE139C6F80E52CA9B1A7B40F188235
10-406-CON-REI Resp to Final OA dated 09-03-2024-CLM.pdf	34FF631445303C6B5A8761BFA1F86F55CDD6DBCD2CC10EB4 4EB0F371DA1158376E872F6BDDD220A170B4CCB9DEFA956B C46AC817899498E68435126417658C9B
10-406-CON-REI Resp to Final OA dated 09-03-2024-REM.pdf	5E8EAB9FE49BEEAC59B3FC3C91BDCA690B8F4CE6699BD3F BB0D411F844444C7F9D621DF9CE09B2D64BFD07595147AA4F D11EB8D465757E2C1E0EFD13FFF36B4E
10-406-CON-REI Extension of Time.pdf	C85DAE08AC34F54728CDB26E2A7DCA129C6510AFBAD72789 8F842647886EB53722B6691FCB8E6CA405E2EB45C1399901F4 5E84DD85797C3BDB0A8FE737F02737

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New Applications Under 35 U.S.C. 111

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New International Application Filed with the USPTO as a Receiving Office

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/413,052	Filing Date 05/15/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ 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	01/07/2025	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	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

		(Column 1)		(Column 2)	(Column 3)			
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".	/PATRICIA F LEWIS/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
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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.
16/413,052	05/15/2019	Hans Maarten Stokking	10-406-CON-REI	9330

20306 7590 09/03/2024

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP
300 S. WACKER DRIVE
32ND FLOOR
CHICAGO, IL 60606

EXAMINER	
HENEGHAN, MATTHEW E	

ART UNIT	PAPER NUMBER
3992	

NOTIFICATION DATE	DELIVERY MODE
09/03/2024	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):

docketing@mbhb.com

Office Action Summary	Application No. 16/413,052	Applicant(s) Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	AIA (FITF) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 11 September 2023.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-6,8-12,15-23 and 27 is/are pending in the application.

5a) Of the above claim(s) 24-26 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 23 and 27 is/are rejected.

8) ☑ Claim(s) 1-6,8-12 and 15-22 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 15 May 2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☑ Certified copies of the priority documents have been received in Application No. 12808665.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. For reissue applications filed on or after September 16, 2012, all references to 35 U.S.C. 251 and 37 CFR 1.172, 1.175, and 3.73 are to the current provisions.

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102, 103, and 112 (or as subject to pre-AIA 35 U.S.C. 102, 103, and 112) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

Priority

4. The instant application is a broadening reissue of U.S. Patent Application No. 14/015,765, filed 30 August 2013, now U.S. Patent No. 9,654,330 (hereinafter the '330 patent), issued 16 May 2017. The '330 patent was filed as a continuation of U.S. Patent Application No. 12/808,665, filed 16 June 2010, now U.S. Patent No. 8,549,151 (hereinafter the '151 patent), which was a national stage entry of PCT application PCT/EP08/11014, filed 22 December 2008, which claimed priority to Provisional U.S.

Patent Application No. 61/008,664, filed 21 December 2007, and foreign priority to European Patent Application No. EP08002517.4, filed 21 February 2008.

Claim Status

5. In response to the previous Office Action, Applicant has amended claims 1, 16, 17, and 23. Claims 1-6, 8-12, 15-23, and 27 have been examined. Claims 24-26 stand as withdrawn.

Claim Objections

6. Claims 1, 16, 17, and 23-27 are objected under 37 CFR 1.173 to because the claims should be marked against the claims of the original patent, rather than the previous versions of the claims.

Applicant is reminded that matter being deleted from the original claims should be enclosed in single square brackets, rather than being enclosed in double square brackets or crossed out.

Further regarding claims 23-27, which do not appear in the original patent, the claims should be underlined in their entirety and marked as "New."

Explanations of support for amendments to the claims should specifically point out how the cited portions of the specification support the changes introduced in the amendments.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 23 and 27 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by China Patent Publication No. CN1393090A (hereinafter Mostafa).

NOTICE: All citations to Mostafa are being made to an English language version of this reference, U.S. Patent Application Publication No. 2002/0073205 to Mostafa. These references were both previously cited in the Office Action mailed by the Office on 14 March 2023.

As per claim 23, Mostafa discloses a terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that (a sender, see paragraphs 101, 102, and 125), when executed by the computing device, causes the terminal to carry out operations including: initiating, using a first protocol (use of HTTP in Phase 1, see paragraphs 114-115), exchange of first multimedia session information between the terminal and the gateway (see paragraph 103 and 106; the recipient server can be any suitable node, as its functionality as a "gateway" is outside of the scope of the claimed terminal), wherein the exchange of the first multimedia session information establishes a first multimedia session between the

first terminal and the gateway according to the first protocol and sets up a first media stream originating from the terminal (see details of phase 1, figure 2 and paragraphs 102, 103, and 107), and wherein the first multimedia session information includes a type of media (see paragraph 104); and transmitting an identifier to the gateway using the first protocol (see phase 2, paragraph 104; the MMS server may be part of the media server, see paragraph 106), wherein the identifier is configured for being used by the gateway to identify a second terminal (presentation description information including details of an access mechanism by use of which media content can be retrieved from the media server, see paragraph 104).

The remainder of claim 23 is solely directed to a transaction performed between the gateway and the second terminal and is beyond the scope of anything being performed by the claimed terminal. As such, these limitations are outside of the scope of the claimed terminal and are considered to have no patentable weight for the purpose of evaluating the claim.

As per claim 27, the terminal may be a cellular radiotelephone having data and voice (i.e. Multimedia) capabilities (see paragraph 125).

Allowable Subject Matter

8. Claims 1-6, 8-12, and 15-22 would be allowable if rewritten to overcome the objections set forth in this Office action.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 1, 16, and 17, the closest art, Nguyenphu, discloses a multimedia session between the first and second terminals, with the gateway merely acting as a relay, but not a multimedia session that is simply between the first terminal and gateway.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW E HENEGHAN whose telephone number is (571)272-3834. The examiner can normally be reached M-F 8-5.

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, Michael Fuelling can be reached on (571)270-1367. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free). If you would like assistance from a USPTO Customer Service

Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW E HENEGHAN/
Primary Examiner, Art Unit 3992

Conferees:
/MINH DIEU NGUYEN/
Primary Examiner, Art Unit 3992

/MICHAEL FUELLING/
Supervisory Patent Examiner, Art Unit 3992

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

CPC - Searched*		
Symbol	Date	Examiner
H0429/08522,06517;H0465/1069,1006,4076,104,103,1016,608	01/07/2021	MH
H04L67/1091;H04L69/08	01/07/2021	MH

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 keyword and class searches	01/07/2021	MH
Review of previous search	08/10/2021	MH
PE2E Update search, see notes	07/22/2022	MH
NPL search	07/22/2022	MH
Update Searches, Global Dossier, PTAB searches	03/08/2023	MH
PE2E, Google searches, Global Dossier, PTAB searches	02/08/2024	MH
PE2E, PTAB, Global Dossier Update Searches	08/20/2024	MH

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

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

CLAIM		DATE								
Final	Original	01/07/2021	08/10/2021	07/22/2022	03/08/2023	02/08/2024	08/20/2024			
	1	✓	✓	=	✓	✓	O			
	2	✓	✓	=	O	✓	O			
	3	✓	✓	=	✓	✓	O			
	4	✓	✓	=	✓	✓	O			
	5	✓	✓	=	✓	✓	O			
	6	✓	✓	=	✓	✓	O			
	7	✓	✓	-	-	-	-			
	8	✓	✓	=	✓	✓	O			
	9	✓	✓	=	O	✓	O			
	10	✓	✓	=	✓	✓	O			
	11	✓	✓	=	✓	✓	O			
	12	✓	✓	=	✓	✓	O			
	13	✓	✓	-	-	-	-			
	14	✓	✓	-	-	-	-			
	15	✓	✓	=	✓	✓	O			
	16	✓	✓	=	✓	✓	O			
	17	✓	✓	=	✓	✓	O			
	18	✓	✓	=	O	✓	O			
	19	✓	✓	=	✓	✓	O			
	20	✓	✓	=	O	✓	O			
	21	✓	✓	=	✓	✓	O			
	22	✓	✓	=	O	✓	O			
	23	✓	✓	✓	✓	✓	✓			
	24	N	N	N	N	N	N			
	25	N	N	N	N	N	N			
	26	N	N	N	N	N	N			
	27	✓	✓	✓	✓	✓	✓			

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L96	27	(h04n21/4108).cpc. AND @ad<"20071221" AND gateway AND (session stream)	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2024/08/20 04:18 PM
L97	16261	(h04l69/08).cpc.	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2024/08/20 04:19 PM
L98	1647	(h04l67/1091).cpc.	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2024/08/20 04:19 PM
L99	52592	(h04l65/1069,1006,4076,104,103,1016,608).cpc.	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2024/08/20 04:19 PM
L100	92	(h04l29/08522,06517).cpc.	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2024/08/20 04:19 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/413,052	**08/13/2024 01:23:15 PM Z ET**	**10-406-CON-REI**

Title of Invention

Method and System for Transmitting a Multimedia Stream

Application Information

APPLICATION TYPE	Utility - Reissue	PATENT #	-
CONFIRMATION #	9330	FILED BY	KATHLEEN CHURAY
PATENT CENTER #	66764458	AUTHORIZED BY	Matthew Ridsdale
CUSTOMER #	20306	FILING DATE	05/15/2019
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Hans Maarten Stokking

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 1002	**E20248CD24129834**	**Matthew Ridsdale**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1253	EXTENSION FOR RESPONSE WITHIN THIRD MONTH	1480.00	1	1480.00
			TOTAL AMOUNT:	**$1,480.00**

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 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

(Attorney Docket No. 10-406-CON-REI)

First Named Inventor:	Hans Maarten Stokking
Application No.:	16/413,052
Filed:	05/15/2019
Title:	METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM
Art Unit:	3992
Confirmation No.:	9330
Examiner:	Heneghan, Matthew E.

FILED VIA PATENT CENTER ON AUGUST 13, 2024

RESPONSE TO OFFICE ACTION

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

Applicant provides this submission in response to the Office Action dated February 15, 2024. Applicant submits the following claims and remarks. The claims begin on page 2, and the remarks begin on page 9.

Applicant generally authorizes the Office to charge any underpayment or credit any overpayment to Deposit Account No. 132490, and to treat any communication in this matter that requires an extension of time as incorporating a request for such an extension.

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AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims:

1. (Currently Amended) A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information establishes **[[**the**]]** **a** first multimedia session **between the first terminal and the gateway** according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes **[[**the**]]** **a** second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream,

wherein the first protocol, the second protocol, and the third protocol are all different.

2. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway providing to the first terminal at least part of the second multimedia session information.

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3. (Original) The method according to claim 1, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. (Original) The method according to claim 4, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. (Original) The method according to claim 5, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

7. (Canceled)

8. (Original) The method of claim 1, wherein the first multimedia stream is the second multimedia stream.

9. (Original) The method of claim 1, wherein the first protocol is a peer-to-peer protocol.

10. (Previously Presented) The method of claim 1, wherein the third protocol is a client-server protocol, and wherein the second terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

11. (Original) The method of claim 1, wherein the trigger comprises a network address of the gateway.

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12. (Original) The method of claim 11, wherein the network address is a URI or a URI reference.

13. (Canceled)

14. (Canceled)

15. (Original) The method of claim 1, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

16. (Currently Amended) An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information establishes **[[**the**]]** **a** first multimedia session **between the first terminal and the gateway** according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes **[[**the**]]** **a** second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates; and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal,

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wherein the first protocol, the second protocol, and the third protocol are all different.

17. (Currently Amended) A gateway comprising:

a communication interface; and

memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information establishes **[[**the**]]** **a** first multimedia session according **between the first terminal and the gateway** to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, ~~wherein the third protocol is different from the first protocol,~~ wherein the exchange of the second multimedia session information establishes **[[**the**]]** **a** second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates,

wherein the first protocol, the second protocol, and the third protocol are all different.

18. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to connect to the first terminal supporting the first protocol and to the second terminal supporting the second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

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wherein, in relation to the first protocol, the first terminal is an originating user-side SIP client,

wherein the gateway acts as a terminating SIP client,

wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from the first terminal and to provide the first terminal with multimedia session information,

wherein, in relation to the second protocol, the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user, and

wherein the gateway is further configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to transmit a notification message to the second terminal in response to an invitation of the first terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to operate in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), wherein memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by a service-control-function component within the IMS network architecture;

triggering the second terminal is controlled by a service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by a media-function component within the IMS network architecture.

21. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to associate the first multimedia session information and the second multimedia session information with each other.

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22. (Original) The gateway of claim 17, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

23. (Currently Amended) A terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that, when executed by the computing device, causes the terminal to carry out operations including:

initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information establishes **[[**the**]] a** first multimedia session **between the first terminal and the gateway** according to the first protocol and sets up a first media stream originating from the terminal, and wherein the first multimedia session information includes a type of media; and

transmitting an identifier to the gateway using the first protocol, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, **the trigger** notifying the second terminal of the availability of the first stream**, thereby enabling the second terminal to:**

in response to the receiving of the trigger use a third protocol to initiate the exchange of second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes a second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates, wherein the second media stream is associated with the first media stream, wherein the first protocol, the second protocol, and the third protocol are all different.

24. (Withdrawn) The terminal of claim 23, wherein the identifier is a closed user group ID and the second terminal is part of a closed user group identified by this closed user group ID.

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25. (Withdrawn) The terminal of claim 24, wherein the closed user group identified by the closed user group ID contains a plurality of community subscribers and the closed user group ID is configured for being resolved by the gateway into a plurality of subscriber terminal addresses, enabling the gateway to transmit a plurality of triggers to the plurality of community subscribers notifying them of the availability of the first stream.

26. (Withdrawn) The terminal of claim 23, wherein the terminal is configured to transmit a list of subscriber terminal addresses, and the identifier is a subscriber terminal address.

27. (Previously Presented) The terminal of claim 23, wherein the terminal is one of a personal computer, a PDA, or a mobile phone with multimedia capabilities.

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REMARKS

I. Summary of the Office Action

The Office Action dated February 15, 2024 ("the Office Action") made the following objections and/or rejections, each of which is addressed in more detail below:

Claim 17 has been objected to based on an alleged informality.

Claims 1-6, 8-12, 15-23, and 27 under 35 U.S.C. 112 as being indefinite.

Claims 1-6, 8, 10-12, 15-17, 19, 21, 23, and 27 have been rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent Application Publication No. 2006/0230154 (*Nguyenphu*) in view of WAP Forum, "Push Access Protocol," 2001 (hereinafter "the WAP Forum") further in view of Levinson, "The MIME Multipart/Related Content-type," RFC 2387, 1998 (*RFC2387*).

Claims 9, 18, 20, and 22 have been indicated to be allowable.

II. Interview Summary

Applicant thanks Examiner Heneghan for the telephonic interview on July 30, 2024 ("the Interview") with the Applicant's representative Matthew Ridsdale (Reg. No. 56,832). Applicant appreciates the Examiner's time in discussing the present application, the pending claims, the current rejections, and the cited art. During the course of the Interview it was agreed that the prior art does not disclose a first protocol, a second protocol, and a third protocol and that the three protocols are all different as recited by the pending claims. Moreover, as memorialized in the Interview Summary provided on August 8, 2024, agreement was reached that the proposed amendments overcame the relied upon references. Applicant submits that the substance of the Interview, is reflected within the amendments to the claims and the remarks presented herein.

III. Status of the Claims

The present application includes claims 1-6, 8-12, 15-23, and 27 with claims 24-26 having been withdrawn. By this Response, claims 1, 16, 17, and 23 have been amended. Support for these amendments may be found at least a col. 12, lines 20-33, and FIGS. 5(a)-5(c) of the specification. Applicant respectfully submits that no new matter has been added by these

amendments. Applicant expressly reserves the right to pursue the subject matter of the previously presented claims in a continuing application.

IV. Claim Objections

The Office Action has objected to claim 17 based on an alleged informality. In light of the amendment to claim 17, Applicant respectfully submits that the pending objection has been rendered moot. Applicant respectfully requests reconsideration and withdrawal of the pending objections.

V. Claim Rejections – 35 U.S.C. 112

The Office Action has objected to claims 1-6, 8-12, 15-23, and 27 under 35 U.S.C. 112 as being indefinite. In light of the amendments to claims 1, 16, 17, and 23, Applicant respectfully submits that any allegations that the pending claims are indefinite have been rendered moot. Applicant respectfully requests reconsideration and withdrawal of the pending rejections.

VI. Claim Rejections – 35 U.S.C. 103

Applicant now turns to the rejection of claims 1-6, 8, 10-12, 15-17, 19, 21, 23, and 27 under 35 U.S.C. 103 as being unpatentable over *Nguyenphu* in view of the WAP Forum and *RFC2387*. Applicant respectfully submits that the proposed combination does not teach or suggest the entirety of the features recited in the pending claims for at least the reasons discussed below.

For example, Applicant respectfully submits that the cited art does not teach or suggest at least the following features recited in independent claim 2 (emphasis added):

- the gateway or the first terminal **using a first protocol to exchange first multimedia session information between the first terminal and the gateway**, wherein **the exchange of the first multimedia session information establishes a first multimedia session between the first terminal and the gateway according to the first protocol and sets up a first media stream from the first terminal**, and wherein the first multimedia session information includes a type of media

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- **the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal**, wherein the trigger is to **initiate an exchange of second multimedia session information between the gateway and the second terminal**, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;
- in response to receiving the trigger, **the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal**, wherein the exchange of the second multimedia session information **establishes a second multimedia session according to the third protocol and sets up a second media stream to the second terminal** in which the second terminal participates; and
- wherein the first protocol, the second protocol, and the third protocol are all different.

Applicant respectfully submits and maintains that none of the recited references, either alone or in combination, discloses or suggests the subject matter recited by the pending claims. Applicant notes that the subject matter of the pending claims has been found to be protectable in a related, and now patented, application. Applicant further submits that the relied upon references do not disclose each and every element recited by the pending claims. For example, none of the relied upon references discloses utilizing a first protocol, a second protocol, and a third protocol as recited by the amended claims. Moreover, Applicant respectfully submits that the each of the relied upon references is silent on the first protocol, the second protocol, and the third protocol all being different protocols as recited by the pending. Applicant further notes that the relied upon references do not teach, or even suggest, a first multimedia session and a second multimedia session configured and arranged as recited by the amended claims.

Nguyenphu discloses an arrangement and method for performing a push operation in a communication system that includes an involved gateway entity and push destination entity. *See Abstract* and paragraph [0049]. The Office Action alleges that *Nguyenphu* discloses at paragraph [0091] that:

> [b]etween the push proxy gateway PPG and the push initiator PI there is an interface conforming to the PAP protocol (see appendix, reference [PushPAP] for

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details). The PAP protocol sets out specific operations, which the push proxy gateway PPG follows in order to deliver the push content to the user's terminal.

In particular, the Office Action alleges beginning at page 5, line 18 that the PAP protocol, the push proxy gateway PPG and the push initiator PI discloses "initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information establishes a first multimedia session between the first terminal and the gateway according to the first protocol and sets up a first media stream originating from the terminal," as recited by the amended claims. While the PAP protocol may, *arguendo,* be designated as the first protocol in *Nguyenphu*; Applicant notes that *Nguyenphu* explicitly teaches that "the PAP protocol sets out specific operations, which the push proxy gateway PPG follows in order to deliver the push content to the user's terminal," and not, for example, the push initiator PA. In other words, Applicant submits that the PAP protocol of *Nguyenphu,* regardless of the designation, does not "establish[ ] a first multimedia session between the first terminal [the push initiator PI] and the gateway [push proxy gateway PPG] according to the first protocol and sets up a first media stream originating from the terminal," as recited by the amended claims. Moreover, Applicant further submits that the first multimedia session between **the first terminal and the gateway** is not analogous to *push message delivery to a client device [and not the push initiator PI] according to the PAP protocol* as relied upon and discussed in paragraph [0112] of *Nguyenphu*. Accordingly, Applicant submits that *Nguyenphu* is silent on these elements recited by the amended claims.

The Office Action further alleges that *Nguyenphu* discloses at paragraph [0114] that:

in step S**4**, the push proxy gateway PPG sends an SIP INVITE request to the push destination entity UA. SIP, Session Initiation Protocol is used as an example only; in connection with the present invention, a non-SIP session could be setup using a different session setup or rendezvous protocol. The SIP INVITE contains a session description protocol SDP entity describing (e.g. properties of) an MSRP media stream and declaring support for a number of MIME types that are applicable (e.g., this could be a generic OMA SIP PUSH MIME type or a specific one, such as Device Management DM). **Thus, stated in other words, there occurs a setting up of a connecting session (here: SIP (with SDP)) which invokes a messaging session (here MSRP) for delivering content to be pushed**

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> **in the push operation towards the push destination entity (UA)**. (Emphasis added).

Based upon this relied upon disclosure of *Nguyenphu*, the Office Action alleges that the second terminal is the push destination entity UA, and that the second protocol is a Session Initiation Protocol (SIP) that sends a SIP INVITE to the push destination entity UA.

Similarly, the Office Action alleges that *Nguyenphu* teaches that "in response to receiving the trigger, **the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal**, wherein the exchange of the second multimedia session information establishes a second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates," as recited by the amended claim. (Emphasis added). Specifically, the Office Action relies on paragraphs [0115]-[0116] which discloses that the push destination entity UA and the push proxy gateway PPG utilize the SIP, Session Initiation Protocol to acknowledge the SIP INVITE. In other words, the communication is initiated and conducted according to the SIP protocol, i.e., the second protocol designated by the Office Action. For example, Applicant respectfully submits that the teaching of *Nguyenphu* at paragraph [0117] makes it clear that "the push proxy gateway PPG sends a request to push content using Message Session Relay Protocol MSRP with SIP. The request is represent[ed] by a so-called object to be pushed over the air interface using e.g. SIP as a connecting session." Thus, Applicant submits that the push destination entity UA and the push proxy gateway PPG utilize the second protocol, i.e., the SIP protocol, to initiate the exchange of the second multimedia session information between the gateway and the second terminal.

Moreover, the alleged third protocol, the Message Session Relay Protocol (MSRP) is not utilized by the second terminal to initiate the exchange of the second multimedia session information between the gateway and the second terminal as recited by the amended claims.

Applicant further notes that as discussed above, any designated second multimedia session is not established according to the third protocol but is established using the previously designated second protocol. Moreover, Applicant maintains, as discussed above, that push message delivery to a client device [and not the push initiator PI] according to the PAP protocol as relied upon by the Office Action is not analogous to the first multimedia session between the first terminal and the gateway as recited by the amended claims. Accordingly, Applicant

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respectfully submits that *Nguyenphu* only discloses one multimedia session including one media stream and not the first and second multimedia sessions and associated media streams as recited by the amended claims.

Applicant additionally notes that *Nguyenphu* does not disclose an arrangement where a first multimedia session is established between the first terminal and the gateway, and a second multimedia session is established between the second terminal and the gateway. Applicant further submits that a multimedia session is established between the second terminal and the gateway but *Nguyenphu* is silent regarding any multimedia session between a first terminal and the gateway.

For all of these reasons, Applicant respectfully submits that the *Nguyenphu* is silent regarding a first protocol, a second protocol, and a third protocol where each of the protocols is a different protocol as recited by the amended claims. Instead, Applicant submits that *Nguyenphu* discloses that the second and third protocols are both SIP protocols. Contrary to the Office Action, the Message Session Relay Protocol (MSRP) is not utilized by the second terminal but is used by the gateway (the push proxy gateway PPG) to push content to the second terminal (push destination entity UA). *See* paragraph [0117].

Applicant further notes that the inclusion of the WAP Forum and *RFC2387* discloses the PUSH Access Protocol and message format, respectively. Neither of the relied upon references provides the teaching or disclosure missing from *Nguyenphu,*

Because none of the relied upon references discloses, or suggests, each and every element recited by the claims at issue, these reference cannot, either alone or in combination with each other, provide the basis upon which a *prima facie* case of obviousness may be established. Accordingly, Applicant respectfully submits that claims 1-6, 8-12, 15-23, and 27 are patentable over any combination of the relied upon references. Withdrawal and reconsideration of the pending rejections is hereby respectfully requested.

VII. Conclusion

Applicant submits that all of the stated grounds of objection and rejection have been respectfully traversed, accommodated, or rendered moot. Applicant therefore submits that the present application is in condition for allowance. If the Examiner believes that further dialogue

would expedite consideration of the application, the Examiner is invited to contact the undersigned at 312.913.0001.

Respectfully submitted,
McDonnell Boehnen Hulbert and Berghoff LLP

Date: August 13, 2024

By: /Matthew T. Ridsdale/
Matthew T. Ridsdale
Reg. No. 56,832

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UNITED STATES
PATENT AND TRADEMARK OFFICE

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/413,052	**08/13/2024 01:23:15 PM Z ET**	**10-406-CON-REI**

Title of Invention

Method and System for Transmitting a Multimedia Stream

Application Information

APPLICATION TYPE	Utility - Reissue	PATENT #	-
CONFIRMATION #	9330	FILED BY	KATHLEEN CHURAY
PATENT CENTER #	66764458	FILING DATE	05/15/2019
CUSTOMER #	20306	FIRST NAMED INVENTOR	Hans Maarten Stokking
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Matthew Ridsdale

Documents

TOTAL DOCUMENTS: 4

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
10-406-CON-REI OA Resp to dated 02-15-2024.pdf		15	-	159 KB
10-406-CON-REI OA Resp to dated 02-15-2024-A....pdf	(1-1)	1	Amendment/Request for Reconsideration-After Non-Final Rejection	80 KB
10-406-CON-REI OA Resp to dated 02-15-2024-CLM.pdf	(2-8)	7	Claims	92 KB
10-406-CON-REI OA Resp to dated 02-15-2024-REM.pdf	(9-15)	7	Applicant Arguments/Remarks Made in an Amendment	141 KB
10-406-CON-REI Extension of Time.pdf		2	Extension of Time	457 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
10-406-CON-REI OA Resp to dated 02-15-2024.pdf	C37CC40D6A0F4F1BF9B10CE430758A80DC21B96B16C6DE875B4B085F3225B7587D184205373F35E366D2BA9E62710F25BEE0FF89A0AD68A980591AFB0222DE71
10-406-CON-REI OA Resp to dated 02-15-2024-A....pdf	752BC02517B72AC9F694ACDD5A942ED0264E2142E4DEA87D5299A9A9CD897636CEFCCCA8184C336CE56520927687A95938D88D45BCD62AC059D721713BD0D8D5
10-406-CON-REI OA Resp to dated 02-15-2024-CLM.pdf	804BA0F91E1863310C9F2BCC9EFD0D163AA521019B82BEE1840D8768EC6B5F083FA75BC78613E36C7CECE0C8748F32EEE770F8EC8AD1D98A0A78DABD8390C1EF
10-406-CON-REI OA Resp to dated 02-15-2024-REM.pdf	CE54033D432DFD3E906C3E63C4CE71DC918CC59CCE69FFD63909CAF512830281A4B50DF1F7263596F4E78EC594339140624138227E445678004F69244F5C4BD7
10-406-CON-REI Extension of Time.pdf	583F238BA422A03D9BB837551182EB401C655A32D7DFD7F8A4A8D201AE2A5EA4FB0EFC5BC0F975E91AA60567F1AD52863A2C188DF4DF882A719483AB07AE00E9

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If a new application is being filed and the application includes the necessary components for 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

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PTO/SB/22 (12-22)
Approved for use through 05/31/2024. OMB 0651-0031
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 10-406-CON-REI

Application Number: 16/413,052

Filed: 2019-05-15

For: Method and System for Transmitting a Multimedia Stream

Art Unit: 3992

Examiner: Matthew E. Heneghan

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$220	$88	$44	$
☐	Two months (37 CFR 1.17(a)(2))	$640	$256	$128	$
☑	Three months (37 CFR 1.17(a)(3))	$1,480	$592	$296	$ 1,480.00
☐	Four months (37 CFR 1.17(a)(4))	$2,320	$928	$464	$
☐	Five months (37 CFR 1.17(a)(5))	$3,160	$1,264	$632	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 132490.

☑ Payment made via EFS-Web.

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.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. 37 CFR 3.73(b) statement is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration number 56,832.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Matthew T. Ridsdale/ — Signature

2024-08-13 — Date

Matthew T. Ridsdale — Typed or printed name

312.913.0001 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/413,052	Filing Date 05/15/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ 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	08/13/2024	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 24	Minus	** 27	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	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

		(Column 1)		(Column 2)	(Column 3)			
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".	/PATRICIA F LEWIS/
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/413,052	05/15/2019	Hans Maarten Stokking	10-406-CON-REI	9330

20306 7590 08/08/2024

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EXAMINER	
HENEGHAN, MATTHEW E	

ART UNIT	PAPER NUMBER
3992	

NOTIFICATION DATE	DELIVERY MODE
08/08/2024	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):

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Applicant-Initiated Interview Summary	**Application No.** 16/413,052	**Applicant(s)** Stokking et al.		
	Examiner MATTHEW E HENEGHAN	**Art Unit** 3992	**AIA (First Inventor to File) Status** No	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
MATTHEW E HENEGHAN	Primary Examiner	Telephonic
MICHAEL FUELLING	SPE	
MINH DIEU NGUYEN	Primary Examiner	
MATTHEW RIDSDALE	Attorney of Record	

Date of Interview: 30 July 2024

Issues Discussed:

35 U.S.C. 103

The Examiner agreed that the amendments to claims 1, 16, and 17, if presented in conformance with reissue practice, would overcome the stated rejection. The Examiner further stated that the amendment would also overcome the stated rejection of claim 23, but would necessitate further search.

Other

Interview agenda, including draft claim amendments (not entered) attached.

☑ Attachment

	/MATTHEW E HENEGHAN/ Primary Examiner, Art Unit 3992

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

(Attorney Docket No. 10-406-CON-REI)

First Named Inventor:	Hans Maarten Stokking
Application No.:	Hans Maarten Stokking
Filed:	05/15/2019
Title:	METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM
Art Unit:	3992
Confirmation No.:	9330
Examiner:	Heneghan, Matthew E

FILED VIA PATENT CENTER ON JULY XX, 2024

PROPOSED RESPONSE TO OFFICE ACTION

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

Applicant provides this submission in response to the Office Action dated February 15, 2024. Applicant submits the following claims and remarks. The claims begin on page 2, and the remarks begin on page 8.

Applicant generally authorizes the Office to charge any underpayment or credit any overpayment to Deposit Account No. 132490, and to treat any communication in this matter that requires an extension of time as incorporating a request for such an extension.

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AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims:

1. (Currently Amended) A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information establishes ~~the~~ **a** first multimedia session **between the first terminal and the gateway** according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes ~~the~~ **a** second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream,

wherein the first protocol, the second protocol, and the third protocol are all different.

2. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway providing to the first terminal at least part of the second multimedia session information.

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3. (Original) The method according to claim 1, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. (Original) The method according to claim 4, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. (Original) The method according to claim 5, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

7. (Canceled)

8. (Original) The method of claim 1, wherein the first multimedia stream is the second multimedia stream.

9. (Original) The method of claim 1, wherein the first protocol is a peer-to-peer protocol.

10. (Previously Presented) The method of claim 1, wherein the third protocol is a client-server protocol, and wherein the second terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

11. (Original) The method of claim 1, wherein the trigger comprises a network address of the gateway.

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12. (Original) The method of claim 11, wherein the network address is a URI or a URI reference.

13. (Canceled)

14. (Canceled)

15. (Original) The method of claim 1, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

16. (Currently Amended) An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information establishes ~~the~~ **a** first multimedia session **between the first terminal and the gateway** according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes ~~the~~ **a** second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates; and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal,

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wherein the first protocol, the second protocol, and the third protocol are all different.

17. (Currently Amended) A gateway comprising:

a communication interface; and

memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information establishes ~~the~~ **a** first multimedia session according **between the first terminal and the gateway** to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, ~~wherein the third protocol is different from the first protocol,~~ wherein the exchange of the second multimedia session information establishes ~~the~~ **a** second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates,

wherein the first protocol, the second protocol, and the third protocol are all different.

18. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to connect to the first terminal supporting the first protocol and to the second terminal supporting the second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

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wherein, in relation to the first protocol, the first terminal is an originating user-side SIP client,

wherein the gateway acts as a terminating SIP client,

wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from the first terminal and to provide the first terminal with multimedia session information,

wherein, in relation to the second protocol, the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user, and

wherein the gateway is further configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to transmit a notification message to the second terminal in response to an invitation of the first terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to operate in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), wherein memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by a service-control-function component within the IMS network architecture;

triggering the second terminal is controlled by a service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by a media-function component within the IMS network architecture.

21. (Previously Presented) The gateway of claim 17, wherein the gateway is further configured to associate the first multimedia session information and the second multimedia session information with each other.

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22. (Original) The gateway of claim 17, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

23. (Currently Amended) A terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that, when executed by the computing device, causes the terminal to carry out operations including:

initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information establishes ~~the~~ **a** first multimedia session **between the first terminal and the gateway** according to the first protocol and sets up a first media stream originating from the terminal, and wherein the first multimedia session information includes a type of media; and

transmitting an identifier to the gateway using the first protocol, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream.

24. (Withdrawn) The terminal of claim 23, wherein the identifier is a closed user group ID and the second terminal is part of a closed user group identified by this closed user group ID.

25. (Withdrawn) The terminal of claim 24, wherein the closed user group identified by the closed user group ID contains a plurality of community subscribers and the closed user group ID is configured for being resolved by the gateway into a plurality of subscriber terminal addresses, enabling the gateway to transmit a plurality of triggers to the plurality of community subscribers notifying them of the availability of the first stream.

26. (Withdrawn) The terminal of claim 23, wherein the terminal is configured to transmit a list of subscriber terminal addresses, and the identifier is a subscriber terminal address.

27. (Previously Presented) The terminal of claim 23, wherein the terminal is one of a personal computer, a PDA, or a mobile phone with multimedia capabilities.

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REMARKS

I. Summary of the Office Action

The Office Action dated February 15, 2024 ("the Office Action") made the following objections and/or rejections, each of which is addressed in more detail below:

Claim 17 has been objected to based on an alleged informality.

Claims 1-6, 8-12, 15-23, and 27 under 35 U.S.C. 112 as being indefinite.

Claims 1-6, 8, 10-12, 15-17, 19, 21, 23, and 27 have been rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent Application Publication No. 2006/0230154 (*Nguyenphu*) in view of WAP Forum, "Push Access Protocol," 2001 (hereinafter "the WAP Forum") further in view of Levinson, "The MIME Multipart/Related Content-type," RFC 2387, 1998 (*RFC2387*).

Claims 9, 18, 20, and 22 have been indicated to be allowable.

II. Interview Summary

Applicant thanks Examiner Heneghan for the telephonic interview on July 30, 2024 ("the Interview") with the Applicant's representative Matthew Ridsdale (Reg. No. 56,832). Applicant appreciates the Examiner's time in discussing the present application, the pending claims, the current rejections, and the cited art. Applicant acknowledges the Examiner's Interview Summary dated August XX, 2024 ("the Examiner's Interview Summary"). The substance of the Interview, including any agreements, is reflected within the amendments to the claims and the remarks presented herein.

III. Status of the Claims

The present application includes claims 1-6, 8-12, 15-23, and 27 with claims 24-26 having been withdrawn. By this Response, claims 1, 16, 17, and 23 have been amended. Applicant respectfully submits that no new matter has been added by these amendments. Applicant expressly reserves the right to pursue the subject matter of the previously presented claims in a continuing application.

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IV. Claim Objections

The Office Action has objected to claim 17 based on an alleged informality. In light of the amendment to claim 17, Applicant respectfully submits that the pending objection has been rendered moot. Applicant respectfully requests reconsideration and withdrawal of the pending objections.

V. Claim Rejections – 35 U.S.C. 112

The Office Action has objected to claims 1-6, 8-12, 15-23, and 27 under 35 U.S.C. 112 as being indefinite. In light of the amendments to claims 1, 16, 17, and 23, Applicant respectfully submits that any allegations that the pending claims are indefinite have been rendered moot. Applicant respectfully requests reconsideration and withdrawal of the pending rejections.

VI. Claim Rejections – 35 U.S.C. 103

Applicant now turns to the rejection of claims 1-6, 8, 10-12, 15-17, 19, 21, 23, and 27 under 35 U.S.C. 103 as being unpatentable over *Nguyenphu* in view of the WAP Forum and *RFC2387*. Applicant respectfully submits that the proposed combination does not teach or suggest the entirety of the features recited in the pending claims for at least the reasons discussed below.

For example, Applicant respectfully submits that the cited art does not teach or suggest at least the following features recited in independent claim 2 (emphasis added):

- the gateway or the first terminal **using a first protocol to exchange first multimedia session information between the first terminal and the gateway**, wherein **the exchange of the first multimedia session information establishes a first multimedia session between the first terminal and the gateway according to the first protocol and sets up a first media stream from the first terminal**, and wherein the first multimedia session information includes a type of media
- **the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal**, wherein the trigger is to **initiate an exchange of second multimedia session information between the gateway and the second**

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terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

- in response to receiving the trigger, **the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal**, wherein the exchange of the second multimedia session information **establishes a second multimedia session according to the third protocol and sets up a second media stream to the second terminal** in which the second terminal participates; and
- wherein the first protocol, the second protocol, and the third protocol are all different.

Applicant respectfully submits and maintains that none of the recited references, either alone or in combination, discloses or suggests the subject matter recited by the pending claims. Applicant notes that the subject matter of the pending claims has been found to be protectable in a related, and now patented, application. Applicant further submits that the relied upon references do not disclose each and every element recited by the pending claims. For example, none of the relied upon references discloses utilizing a first protocol, a second protocol, and a third protocol as recited by the amended claims. Moreover, Applicant respectfully submits that the each of the relied upon references is silent on the first protocol, the second protocol, and the third protocol all being different protocols as recited by the pending. Applicant further notes that the relied upon references do not teach, or even suggest, a first multimedia session and a second multimedia session configured and arranged as recited by the amended claims.

Nguyenphu discloses an arrangement and method for performing a push operation in a communication system that includes an involved gateway entity and push destination entity. *See Abstract* and paragraph [0049]. The Office Action alleges that *Nguyenphu* discloses at paragraph [0091] that:

> [b]etween the push proxy gateway PPG and the push initiator PI there is an interface conforming to the PAP protocol (see appendix, reference [PushPAP] for details). The PAP protocol sets out specific operations, which the push proxy gateway PPG follows in order to deliver the push content to the user's terminal.

In particular, the Office Action alleges beginning at page 5, line 18 that the PAP protocol, the push proxy gateway PPG and the push initiator PI discloses "initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway, wherein

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the exchange of the first multimedia session information establishes a first multimedia session between the first terminal and the gateway according to the first protocol and sets up a first media stream originating from the terminal," as recited by the amended claims. While the PAP protocol may, *arguendo,* be designated as the first protocol in *Nguyenphu*; Applicant notes that *Nguyenphu* explicitly teaches that "the PAP protocol sets out specific operations, which the push proxy gateway PPG follows in order to deliver the push content to the user's terminal," and not, for example, the push initiator PA. In other words, Applicant submits that the PAP protocol of *Nguyenphu,* regardless of the designation, does not "establish[ ] a first multimedia session between the first terminal [the push initiator PI] and the gateway [push proxy gateway PPG] according to the first protocol and sets up a first media stream originating from the terminal," as recited by the amended claims. Moreover, Applicant further submits that the first multimedia session between **the first terminal and the gateway** is not analogous to *push message delivery to a client device [and not the push initiator PI] according to the PAP protocol* as relied upon and discussed in paragraph [0112] of *Nguyenphu*. Accordingly, Applicant submits that *Nguyenphu* is silent on these elements recited by the amended claims.

> The Office Action further alleges that *Nguyenphu* discloses at paragraph [0114] that:
>
> in step S**4**, the push proxy gateway PPG sends an SIP INVITE request to the push destination entity UA. SIP, Session Initiation Protocol is used as an example only; in connection with the present invention, a non-SIP session could be setup using a different session setup or rendezvous protocol. The SIP INVITE contains a session description protocol SDP entity describing (e.g. properties of) an MSRP media stream and declaring support for a number of MIME types that are applicable (e.g., this could be a generic OMA SIP PUSH MIME type or a specific one, such as Device Management DM). **Thus, stated in other words, there occurs a setting up of a connecting session (here: SIP (with SDP)) which invokes a messaging session (here MSRP) for delivering content to be pushed in the push operation towards the push destination entity (UA)**. (Emphasis added).

Based upon this relied upon disclosure of *Nguyenphu*, the Office Action alleges that the second terminal is the push destination entity UA, and that the second protocol is a Session Initiation Protocol (SIP) that sends a SIP INVITE to the push destination entity UA.

Similarly, the Office Action alleges that *Nguyenphu* teaches that "in response to receiving the trigger, **the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal**, wherein the exchange of the second multimedia session information establishes a second multimedia session

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according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates," as recited by the amended claim. (Emphasis added). Specifically, the Office Action relies on paragraphs [0115]-[0116] which discloses that the push destination entity UA and the push proxy gateway PPG utilize the SIP, Session Initiation Protocol to acknowledge the SIP INVITE. In other words, the communication is initiated and conducted according to the SIP protocol, i.e., the second protocol designated by the Office Action. For example, Applicant respectfully submits that the teaching of *Nguyenphu* at paragraph [0117] makes it clear that "the push proxy gateway PPG sends a request to push content using Message Session Relay Protocol MSRP with SIP. The request is represent[ed] by a so-called object to be pushed over the air interface using e.g. SIP as a connecting session." Thus, Applicant submits that the push destination entity UA and the push proxy gateway PPG utilize the second protocol, i.e., the SIP protocol, to initiate the exchange of the second multimedia session information between the gateway and the second terminal.

Moreover, the alleged third protocol, the Message Session Relay Protocol (MSRP) is not utilized by the second terminal to initiate the exchange of the second multimedia session information between the gateway and the second terminal as recited by the amended claims.

Applicant further notes that as discussed above, any designated second multimedia session is not established according to the third protocol but is established using the previously designated second protocol. Moreover, Applicant maintains, as discussed above, that push message delivery to a client device [and not the push initiator PI] according to the PAP protocol as relied upon by the Office Action is not analogous to the first multimedia session between the first terminal and the gateway as recited by the amended claims. Accordingly, Applicant respectfully submits that *Nguyenphu* only discloses one multimedia session including one media stream and not the first and second multimedia sessions and associated media streams as recited by the amended claims.

Applicant additionally notes that *Nguyenphu* does not disclose an arrangement where a first multimedia session is established between the first terminal and the gateway, and a second multimedia session is established between the second terminal and the gateway. Applicant further submits that a multimedia session is established between the second terminal and the gateway but *Nguyenphu* is silent regarding any multimedia session between a first terminal and the gateway.

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For all of these reasons, Applicant respectfully submits that the *Nguyenphu* is silent regarding a first protocol, a second protocol, and a third protocol where each of the protocols is a different protocol as recited by the amended claims. Instead, Applicant submits that *Nguyenphu* discloses that the second and third protocols are both SIP protocols. Contrary to the Office Action, the Message Session Relay Protocol (MSRP) is not utilized by the second terminal but is used by the gateway (the push proxy gateway PPG) to push content to the second terminal (push destination entity UA). *See* paragraph [0117].

Applicant further notes that the inclusion of the WAP Forum and *RFC2387* discloses the PUSH Access Protocol and message format, respectively. Neither of the relied upon references provides the teaching or disclosure missing from *Nguyenphu,*

Because none of the relied upon references discloses, or suggests, each and every element recited by the claims at issue, these reference cannot, either alone or in combination with each other, provide the basis upon which a *prima facie* case of obviousness may be established. Accordingly, Applicant respectfully submits that claims 1-6, 8-12, 15-23, and 27 are patentable over any combination of the relied upon references. Withdrawal and reconsideration of the pending rejections is hereby respectfully requested.

VII. Conclusion

Applicant submits that all of the stated grounds of objection and rejection have been respectfully traversed, accommodated, or rendered moot. Applicant therefore submits that the present application is in condition for allowance. If the Examiner believes that further dialogue would expedite consideration of the application, the Examiner is invited to contact the undersigned at 312.913.0001.

Respectfully submitted,
McDonnell Boehnen Hulbert and Berghoff LLP

Date: July XX, 2024

By: /Proposed/
Matthew T. Ridsdale
Reg. No. 56,832

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/413,052	05/15/2019	Hans Maarten Stokking	10-406-CON-REI	9330

20306 7590 02/15/2024

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EXAMINER	
HENEGHAN, MATTHEW E	

ART UNIT	PAPER NUMBER
3992	

NOTIFICATION DATE	DELIVERY MODE
02/15/2024	ELECTRONIC

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Office Action Summary	Application No. 16/413,052	Applicant(s) Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	AIA (FITF) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 11 September 2023.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-6,8-12,15-23 and 27 is/are pending in the application.

5a) Of the above claim(s) 24-26 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-6,8-12,15-23 and 27 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 15 May 2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☑ Certified copies of the priority documents have been received in Application No. 12808665.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. For reissue applications filed on or after September 16, 2012, all references to 35 U.S.C. 251 and 37 CFR 1.172, 1.175, and 3.73 are to the current provisions.

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102, 103, and 112 (or as subject to pre-AIA 35 U.S.C. 102, 103, and 112) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

Continued Examination Under 37 CFR 1.114

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11 September 2023 has been entered.

Priority

5. The instant application is a broadening reissue of U.S. Patent Application No. 14/015,765, filed 30 August 2013, now U.S. Patent No. 9,654,330 (hereinafter the '330 patent), issued 16 May 2017. The '330 patent was filed as a continuation of U.S. Patent Application No. 12/808,665, filed 16 June 2010, now U.S. Patent No. 8,549,151 (hereinafter the '151 patent), which was a national stage entry of PCT application PCT/EP08/11014, filed 22 December 2008, which claimed priority to Provisional U.S. Patent Application No. 61/008,664, filed 21 December 2007, and foreign priority to European Patent Application No. EP08002517.4, filed 21 February 2008.

Claim Status

6. In response to the previous Office Action, Applicant has amended claims 1, 16, 17, and 23. Claims 1-6, 8-12, 15-23, and 27 have been examined. Claims 24-26 stand as withdrawn.

Claim Objections

7. Claim 17 is objected to because of the following informalities: The recitations "wherein the third protocol is different from the first protocol" in line 15 and "wherein the

first protocol, the second protocol, and the third protocol are all different" in lines 19-20 are redundant. Appropriate correction is required.

Claim Rejections - 35 USC § 112

> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-6, 8-12, 15-23, and 27 are rejected under 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

Claims 1, 16, 17, and 23 recite the limitation "the first multimedia session " in claim 1, line 5; claim 16, line 6; claim 17, lines 6-7; and claim 23, line 6. There is insufficient antecedent basis for this limitation in the claims. For purposes of the prior art search, it is being presumed this should be "a first multimedia session" and refers to the multimedia session described in the "first multimedia session information."

Claims 1, 16, and 17 also recite the limitation "the second multimedia session " in claim 1, lines 15-16; claim 16, line 15; and claim 17, lines 16-17. There is insufficient antecedent basis for this limitation in the claims. For purposes of the prior art search, it is being presumed this should be "a second multimedia session" and refers to the multimedia session described in the "second multimedia session information."

All other claims are indefinite based upon their dependence on indefinite claims.

Claim Rejections - 35 USC § 103

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

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-6, 8, 10-12, 15-17, 19, 21, 23, and 27 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2006/0230154 to Nguyenphu et al. (hereinafter Nguyenphu) in view of WAP Forum, "Push Access Protocol," 2001 (hereinafter WAP Forum) further in view of Levinson, "The MIME Multipart/Related Content-type," RFC 2387, 1998 (hereinafter RFC2387).

As per claim 1, Nguyenphu discloses a method, wherein a gateway is capable of communicating with a first terminal (such as a multimedia messaging server, see paragraph 5) and a second terminal (see figure 1 and paragraphs 87-89, in which a gateway PPG is in communication with a Push Initiator PI and a client UA), the method comprising: the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway (PAP protocol, see paragraph 91), wherein the exchange of the first multimedia session information establishes a first multimedia session (effects message delivery, see paragraph 112) according to the first protocol and sets up a first media stream from the first terminal; the second terminal using a second protocol to receive a trigger provided

by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream (gateway sends a SIP Invite to describe a MSRP multimedia stream in Step S4, see figure 1 and paragraph 114); in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal (initiates with a SIP OK in Step S5, see paragraph 115), wherein the exchange of the second multimedia session information establishes a second multimedia session according to a third protocol and sets up a second media stream to the second terminal in which the second terminal participates (transmission of MSRP stream, see Step S7, paragraph 117); and the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream (the two transactions are the same content forwarded by the gateway, see paragraphs 88 and 123), wherein the first protocol, the second protocol, and the third protocol are all different (PAP, SIP, and MSRP).

Nguyenphu specifies that a transaction may be multimedia content (see paragraph 80) and should begin with a PUSH message from the multimedia messaging server to the gateway, but does not explicitly state that the first multimedia session information from the multimedia messaging server includes a type of media.

However, WAP Forum specifies the standard for the PUSH Access Protocol that a PUSH message contains a content-type (see example in Section 7.4, pp. 16-17) and points to RFC2387 for the message format, including content-type (see p. 16, Section

7). RFC2387, in turn, states that content-type specifies a Media Type (see p. 2, Section 2). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Nguyenphu by using the teachings of WAP Forum and RFC 2387, as these together are the standard implementation of the PUSH Access protocol for a multimedia server.

As per claim 2, the gateway supplies to the PI a converted report message in Step S10, which is part of the second multimedia session information (see paragraphs 124, and 137-139).

Regarding claim 3, the gateway forwards session information received form the sender insofar as is necessary to configure the session information to be forwarded to the second terminal (see paragraphs 136-138).

Regarding claim 4, WAP Forum discloses that the Push Message contains the address of the destination terminal (see P. 15, Section 6 and p.20, Section 8.2.1).

As per claims 5, 6, and 12, although Nguyenphu, WAP Forum, and RFC2387 do not explicitly discuss network address resolution, WAP Forum states that an identifier of the second terminal may be a URI or URL (see p. 15, Section 6 and paragraph 167). It is well-known in the art that URLs must be resolved into network addresses in order to be used for transmission from a source address to a destination address specified in one or more packets. It would therefore be obvious to one of ordinary skill in the art to implement the invention by resolving destination addresses into network addresses instantiated as destination addresses in packets, to allow them to be used for transmission.

Regarding claim 8, the two media streams can be the same (the two transactions are the same content forwarded by the gateway, see paragraphs 88 and 123).

Regarding claim 10, the third protocol (MSRP) is being used as a client-server protocol, in that the second terminal is always the client (see paragraphs 120-121) is not described as behaving as a server.

Regarding claim 11, the network address of the gateway is included in any packet of the trigger as the source address.

Regarding claim 15, the first and second sessions are associated (see paragraphs 88 and 123).

Regarding claim 16, Nguyenphu discloses an article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device (see figure 1 and paragraphs 87-89, in which a gateway PPG is in communication with a Push Initiator PI and a client UA), cause the computing device to perform operations comprising: using a first protocol to initiate an exchange of first multimedia session information between a first terminal (such as a multimedia messaging server, see paragraph 5) and a gateway (PAP protocol, see paragraph 91), wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream from the first terminal (effects message delivery, see paragraph 112); using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of

availability of a new multimedia stream (gateway sends a SIP Invite to describe a MSRP multimedia stream in Step S4, see figure 1 and paragraph 114); using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes the second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates (transmission of MSRP stream, see Step S7, paragraph 117); and using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal (see paragraph 124, Step S10, response may lead to further transmission), wherein the first protocol, the second protocol, and the third protocol are all different (PAP, SIP, and MSRP).

Nguyenphu specifies that a transaction may be multimedia content (see paragraph 80) and should begin with a PUSH message from the multimedia messaging server to the gateway, but does not explicitly state that the first multimedia session information from the multimedia messaging server includes a type of media.

However, WAP Forum specifies the standard for the PUSH Access Protocol that a PUSH message contains a content-type (see example in Section 7.4, pp. 16-17) and points to RFC2387 for the message format, including content-type (see p. 16, Section 7). RFC2387, in turn, states that content-type specifies a Media Type (see p. 2, Section 2). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Nguyenphu by using the teachings of

WAP Forum and RFC 2387, as these together are the standard implementation of the PUSH Access protocol for a multimedia server.

Regarding claim 17, Nguyenphu discloses a gateway comprising: a communication interface (see figure 1 and paragraphs 87-89, in which a gateway PPG is in communication with a Push Initiator PI and a client UA); memory that stores software instructions (implicit in computerized devices) that, when executed by the gateway, cause the gateway to: (i) exchange first multimedia session information with a first terminal (such as a multimedia messaging server, see paragraph 5) using a first protocol (PAP protocol, see paragraph 91), wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream from the first terminal (effects message delivery, see paragraph 112), (ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol (gateway sends a SIP Invite to describe a MSRP multimedia stream in Step S4, see figure 1 and paragraph 114), in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway (initiates with a SIP OK in Step S5, see paragraph 115), and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and (iii) exchange second multimedia session information with the second terminal, using a third protocol (transmission of MSRP stream, see Step S7, paragraph 117), wherein the third protocol is different from the first protocol (PAP and MSRP), wherein the exchange of the second multimedia session information establishes the second multimedia session to the third protocol and sets up a second

media stream to the second terminal in which the second terminal participates, wherein the first protocol, the second protocol, and the third protocol are all different (PAP, SIP, and MSRP).

Nguyenphu specifies that a transaction may be multimedia content (see paragraph 80) and should begin with a PUSH message from the multimedia messaging server to the gateway, but does not explicitly state that the first multimedia session information from the multimedia messaging server includes a type of media.

However, WAP Forum specifies the standard for the PUSH Access Protocol that a PUSH message contains a content-type (see example in Section 7.4, pp. 16-17) and points to RFC2387 for the message format, including content-type (see p. 16, Section 7). RFC2387, in turn, states that content-type specifies a Media Type (see p. 2, Section 2). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Nguyenphu by using the teachings of WAP Forum and RFC 2387, as these together are the standard implementation of the PUSH Access protocol for a multimedia server.

Regarding claim 19, the gateway transmits an invitation to the second terminal in response to the Push message (gateway sends a SIP Invite to describe a MSRP multimedia stream in Step S4, see figure 1 and paragraph 114).

Regarding claim 21, the first and second sessions are associated (see paragraphs 88 and 123).

As per claim 23, Nguyenphu discloses a terminal configured to communicate with a gateway (see figure 1 and paragraphs 87-89, in which a gateway PPG is in communication with the terminal, a Push Initiator PI), the terminal comprising a computing device having memory storing software (this is implicit in such computerized devices) that, when executed by the computing device, causes the terminal to carry out operations including: initiating, using a first protocol (PAP protocol, see paragraph 91), exchange of first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream originating from the terminal (effects message delivery, see paragraph 112 and figure 1).

The limitations regarding transactions between the gateway and the second terminal, including the need to be able to send a trigger to the second terminal using a second protocol different from the first protocol, and notifying the second terminal of the availability of the first stream, are outside of the scope of the claimed terminal and therefore have no patentable weight.

Nguyenphu specifies that a transaction may be multimedia content (see paragraph 80) and should begin with a PUSH message from the multimedia messaging server to the gateway, but does not explicitly state that the first multimedia session information from the multimedia messaging server includes a type of media or recite the transmitting of an identifier to the gateway using the first protocol for the gateway to to identify a second terminal.

However, WAP Forum specifies the standard for the PUSH Access Protocol that a PUSH message contains a content-type (see example in Section 7.4, pp. 16-17) and points to RFC2387 for the message format, including content-type (see p. 16, Section 7). RFC2387, in turn, states that content-type specifies a Media Type (see p. 2, Section 2). Additionally, WAP Forum discloses that the Push Message contains the address of the destination terminal (see P. 15, Section 6 and p.20, Section 8.2.1). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Nguyenphu by using the teachings of WAP Forum and RFC 2387, as these together are the standard implementation of the PUSH Access protocol for a multimedia server.

Regarding claim 27, Nguyenphu does not specify the type of device to be used as a PI, other than it has a microprocessor running software. One skilled in the art would obvious to use a personal computer for such an implementation in smaller deployments.

Allowable Subject Matter

10. Claims 9, 18, 20, and 22 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 9, Nguyenphu's PI and gateway interact using a client server protocol, rather than peer-to-peer.

Regarding claims 18, 20, and 22, no art could be found that could be incorporated into Nguyenphu to allow for the use of SIP and RTSP in that context.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW E HENEGHAN whose telephone number is (571)272-3834. The examiner can normally be reached M-F 8-5.

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, Michael Fuelling can be reached on (571)270-1367. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-

center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW E HENEGHAN/
Primary Examiner, Art Unit 3992

Conferees:
/MINH DIEU NGUYEN/
Primary Examiner, Art Unit 3992
/MICHAEL FUELLING/
Supervisory Patent Examiner, Art Unit 3992

Notice of References Cited	Application/Control No. 16/413,052	Applicant(s)/Patent Under Reexamination Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date YYYY-MM-DD	Name	CPC Classification	US Classification
*	A	US-20060230154-A1	2006-10-12	Nguyenphu; Thinh	H04L65/1101	709/227
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date YYYY-MM-DD	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	Levinson, "The MIME Multipart/Related Content-type," RFC 2387. (Year: 1998)
	V	WAP Forum, "Push Access Protocol" (Year: 2001)
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in YYYY-MM-DD format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

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

CLAIM		DATE								
Final	Original	01/07/2021	08/10/2021	07/22/2022	03/08/2023	02/08/2024				
	1	✓	✓	=	✓	✓				
	2	✓	✓	=	O	✓				
	3	✓	✓	=	✓	✓				
	4	✓	✓	=	✓	✓				
	5	✓	✓	=	✓	✓				
	6	✓	✓	=	✓	✓				
	7	✓	✓	-	-	-				
	8	✓	✓	=	✓	✓				
	9	✓	✓	=	O	✓				
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	20	✓	✓	=	O	✓				
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	22	✓	✓	=	O	✓				
	23	✓	✓	✓	✓	✓				
	24	N	N	N	N	N				
	25	N	N	N	N	N				
	26	N	N	N	N	N				
	27	✓	✓	✓	✓	✓				

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

CPC - Searched*		
Symbol	Date	Examiner
H0429/08522,06517;H0465/1069,1006,4076,104,103,1016,608	01/07/2021	MH
H04L67/1091;H04L69/08	01/07/2021	MH

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 keyword and class searches	01/07/2021	MH
Review of previous search	08/10/2021	MH
PE2E Update search, see notes	07/22/2022	MH
NPL search	07/22/2022	MH
Update Searches, Global Dossier, PTAB searches	03/08/2023	MH
PE2E, Google searches, Global Dossier, PTAB searches	02/08/2024	MH

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

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

Bibliographic Data

Application No: 16/413,052

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /MATTHEW E HENEGHAN/ [ ]

Examiner's Signature | Initials

Title: Method and System for Transmitting a Multimedia Stream

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FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/15/2019	709	3992	
RULE			

APPLICANTS

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Fabian Arthur Walraven, Groningen, NETHERLANDS

Omar Aziz Niamut, Vlaardingen, NETHERLANDS

CONTINUING DATA

This application is a REI of 14015765 08/30/2013 PAT 9654330

14015765 is a CON of 12808665 06/16/2010 PAT 8549151

12808665 is a 371 of PCT/EP2008/011014 12/22/2008

PCT/EP2008/011014 has PRO of 61008644 12/21/2007

FOREIGN APPLICATIONS

EPO EP08002517.4 02/12/2008

IF REQUIRED, FOREIGN LICENSE GRANTED**

05/16/2019

STATE OR COUNTRY

NETHERLANDS

ADDRESS

FILING FEE RECEIVED

$4,320

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L78	865	video ADJ (relay retransmi$) AND @ad<"20081222"	(US-PGPUB; USPAT; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); EPO; JPO; DERWENT)	OR	ON	ON	2024/01/05 04:24 PM
L79	103	L78 AND gateway	(US-PGPUB; USPAT; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); EPO; JPO; DERWENT)	OR	ON	ON	2024/01/05 04:25 PM
L80	1	re44846.pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/01/30 05:21 PM
L81	2	"9771132".pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA,	OR	ON	ON	2024/01/30 05:27 PM

			EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L82	32	("2002/0073205").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2024/02/01 01:36 PM
L83	8	L82 AND gateway	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2024/02/01 01:38 PM
L84	8	L82 AND gateway	(US-PGPUB; USPAT; USOCR; DERWENT)	OR	ON	ON	2024/02/01 02:00 PM
L85	3	"9344862".pn.	(US-PGPUB; USPAT; DERWENT)	OR	ON	ON	2024/02/01 02:00 PM
L86	10	("20020073205" | "20040187021" | "20040225753" | "20050170855" | "20050243978" | "20060247885" | "20070136475" | "20070156909" | "20070168449" | "20080008106").pn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2024/02/01 03:03 PM
L87	6	L86 AND gateway	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2024/02/01 03:04 PM
L93	164	("2007/0156909" | "2005/0243978" | "2005/0170855" | "2004/0225753" | "2004/0187021").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2024/02/05 05:06 PM
L94	17	L93 AND rtsp	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2024/02/05 05:06 PM
L95	121	msrp SAME gateway	(US-PGPUB; USPAT; JPO; DERWENT)	OR	ON	ON	2024/02/07 07:31 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

PTO/SB/30EFS (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16/413,052	Filing Date	2019-05-15	Docket Number (if applicable)	10-406-CON-REI	Art Unit	3992
First Named Inventor	Hans Maarten Stokking			Examiner Name	Heneghan, Matthew E		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 132490

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Signature of Registered U.S. Patent Practitioner			
Signature	/David A. Grabelsky/	Date (YYYY-MM-DD)	2023-09-11
Name	David A. Grabelsky	Registration Number	59208

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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

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.

PTO/SB/22 (10-20)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 10-406-CON-REI

Application Number: 16/413,052

Filed: May 15, 2019

For: SYSTEM AND METHOD FOR TRANSMITTING A MULTIMEDIA STREAM

Art Unit: 3992

Examiner: Heneghan, Matthew E

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$220	$110	$55	$
☐	Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$
☑	Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$ 1,480
☐	Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐	Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 132490.

☐ Payment made via EFS-Web.

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.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. 37 CFR 3.73(b) statement is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration number 59,208.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/David A. Grabelsky/ — Signature

September 11, 2023 — Date

David A. Grabelsky — Typed or printed name

312-913-3353 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 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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Privacy Act Statement

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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)).
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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.

Electronic Patent Application Fee Transmittal

Application Number:	16413052
Filing Date:	15-May-2019
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Filer:	David A. Grabelsky
Attorney Docket Number:	10-406-CON-REI

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	1253	1	1480	1480
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	1820	1	2000	2000
		Total in USD ($)		**3480**

Electronic Acknowledgement Receipt

EFS ID:	48567459
Application Number:	16413052
International Application Number:	
Confirmation Number:	9330
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Customer Number:	20306
Filer:	David A. Grabelsky
Filer Authorized By:	
Attorney Docket Number:	10-406-CON-REI
Receipt Date:	11-SEP-2023
Filing Date:	15-MAY-2019
Time Stamp:	15:06:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$3480
RAM confirmation Number	E20239AF07025225
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	Amendment Submitted/Entered with Filing of Continued Prosecution Application (CPA)/Request for Continued Examination(RCE)	10-406-CON-REI_Response_plus_RCE_14Mar23_FOA.pdf	229846 62c6c6cf57a9cfe4060d58c9988b59ddea722af7	no	23
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	10-406-CON-REI_Request_for_Continued_Examination_16Aug21_FOA.pdf	1667142 c7ac0939aa2fe68062366d144f1010bb6812957f	no	3
Warnings:					
Information:					
3	Extension of Time	10-406-CON-REI_Petition_for_three-month_Extension_of_Time.pdf	230873 1d9603468f4d3b21b89420c6185aeb254c5d5ee4	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	40857 4166ba3d78d41c2ab72711711c8d526a20c38ed5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2168718		

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Docket No. 10-406-CON-REI)

In re the Application Reissue of:	)	
	)	
Hans Maarten Stokking et al.	)	
	)	
Serial No.: 16/413,052	)	
	)	
Filed: May 15, 2019	)	
	)	
U.S. Patent No.: 9,654,330	)	**Examiner: Heneghan, Matthew E**
	)	
Issue: May 16, 2017	)	**Art Unit: 3992**
	)	
For: METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM	)	**Confirmation No.: 9330**

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

SUBMISSION UNDER 37 C.F.R. § 1.114

In response to the Office Action mailed March 14, 2023, Applicant submits the following amendments and remarks, together with a Request for Continued Examination and requisite fees. In addition, a Petition for Extension of Time under 37 C.F.R. § 1.136(a) (three-month) is enclosed, along with requisite fees. The instant reissue application is a reissue application of U.S. Patent No. 9,654,330 ("the '330 Patent").

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

Remarks begin on page 11 of this paper.

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Amendments to the Claims

1. (Twice amended) A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes the second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream,

wherein the first protocol, the second protocol, and the third protocol are all different.

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2. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway providing to the first terminal at least part of the second multimedia session information.

3. (Original) The method according to claim 1, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. (Original) The method according to claim 4, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. (Original) The method according to claim 5, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

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7. (Canceled)

8. (Original) The method of claim 1, wherein the first multimedia stream is the second multimedia stream.

9. (Original) The method of claim 1, wherein the first protocol is a peer-to-peer protocol.

10. (Amended) The method of claim 1, wherein the third protocol is a client-server protocol, and wherein the second [receiving] terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

11. (Original) The method of claim 1, wherein the trigger comprises a network address of the gateway.

12. (Original) The method of claim 11, wherein the network address is a URI or a URI reference.

13. (Canceled)

14. (Canceled)

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15. (Original) The method of claim 1, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

16. (Twice amended) An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information establishes the second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates; and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal,

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wherein the second media stream to the second terminal is associated with the first media stream from the first terminal,

wherein the first protocol, the second protocol, and the third protocol are all different.

17. (Twice amended) A gateway comprising:

a communication interface; and

memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, wherein the third protocol is different from the first protocol, wherein the exchange of the second multimedia session information establishes the second multimedia session according to the third protocol and sets up a second media stream to the second terminal in which the second terminal participates,

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wherein the first protocol, the second protocol, and the third protocol are all different.

18. (Twice amended) The gateway of claim 17, wherein the gateway is further configured to connect to [a] the first terminal supporting [a] the first protocol and to [a] the second terminal supporting [a] the second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

wherein, in relation to the first protocol, the first terminal is an originating user-side SIP client[of a user at a user side],

wherein the gateway acts as a terminating SIP client,

wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from [the] [user] the first terminal and to provide the first terminal with multimedia session information,

wherein, in relation to the second protocol, the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user, and

[wherein the second terminal uses RTSP for session control, and]

wherein the gateway is further configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. (Amended) The gateway of claim 17, wherein the gateway is further configured to transmit a notification message to the second terminal in response to an invitation of the first

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terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. (Amended) The gateway of claim 17, wherein the gateway is [embedded] further configured to operate in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), [wherein the third protocol is Real Time Streaming Protocol (RTSP), the IMS network architecture comprising a service-control-function component and a media-function component,]wherein [the] memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by [the] a service-control-function component within the IMS network architecture;

triggering the second terminal is controlled by [the] a service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by [the] a media-function component within the IMS network architecture.

21. (Amended) The gateway of claim 17, wherein the gateway is further configured to associate the first multimedia session information and the second multimedia session information with each other.

22. (Original) The gateway of claim 17, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

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23. (New-thrice-amended) A terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that, when executed by the computing device, causes the terminal to carry out operations including:

- initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream originating from the terminal, and wherein the first multimedia session information includes a type of media; and

- transmitting an identifier to the gateway using the first protocol, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream.

24. (New-withdrawn) The terminal of claim 23, wherein the identifier is a closed user group ID and the second terminal is part of a closed user group identified by this closed user group ID.

25. (New-withdrawn) The terminal of claim 24, wherein the closed user group identified by the closed user group ID contains a plurality of community subscribers and the closed user group ID is configured for being resolved by the gateway into a plurality of subscriber terminal addresses, enabling the gateway to transmit a plurality of triggers to the plurality of community subscribers notifying them of the availability of the first stream.

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26. (New-withdrawn) The terminal of claim 23, wherein the terminal is configured to transmit a list of subscriber terminal addresses, and the identifier is a subscriber terminal address.

27. (New) The terminal of claim 23, wherein the terminal is one of a personal computer, a PDA, or a mobile phone with multimedia capabilities.

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Remarks

1. Summary of the Final Office Action

In the Final Office Action mailed March 14, 2023 ("Current Final Office Action"), the Examiner rejected claims 23 and 27 under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by China Patent Publication No. CN1393090A as published in English as U.S. Patent Application Publication No. 2002/0073205 (Mostafa). The Examiner rejected claims 1, 3-6, 8, 10-12, 15-17, 19, and 21 under pre-AIA 35 U.S.C. § 103(a) as allegedly being unpatentable over Mostafa. The Examiner objected to claims 2, 9, 18, 20, and 22 as being dependent upon a rejected base claim, but indicated these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant notes that the Office Action Summary on page 1 of the Current Final Office Action indicates the Action is responsive to a response filed February 4, 2022. This appears to be a "copy-and-paste" editorial error that refers to a response filed by Applicant prior to the most recent response filed January 3, 2023 (and to which the Current Final Office Action is responsive). Applicant kindly requests that the Examiner correct the record with regard to the filing date of Applicant's response to which the Current Final Office Action is responsive.

2. Status of the Claims

Currently pending are claims 1-6, 8-12, and 15-27, of which claims 1, 16, 17, and 23 are independent, and the remainder are dependent. Claims 24-26 were previously withdrawn.

Applicant has amended claim 1 to recite, *inter alia*, "wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream from the first terminal," and "wherein the exchange of the second multimedia session information establishes the second multimedia session according

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to the third protocol and sets up a second media stream to the second terminal…" where the underlined text indicates the amended language. Support for this amendment can be found generally throughout the original '330 Patent, and specifically at least at column 12, line 20-column 13, line 16; and Figure 5(a), for example.

Applicant has amended each of claims 16 and 17 in a manner similar to that of claim 1. Support for these amendments are at least the same as that for claim 1.

Applicant has amended claim 23 to recite, *inter alia*, "wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream originating from the terminal," and "transmitting an identifier to the gateway using the first protocol, …" where the underlined text indicates the amended language. Support for this amendment can be found generally throughout the original '330 Patent, and specifically at least at column 12, line 20-column 13, line 16; column 14, lines 13-17; original claim 4; and Figure 5(a), for example.

No new matter has been added by way of any of the above or previously-filed amendments.

3. Response to Rejections under pre-AIA 35 U.S.C. § 102(b)

The Examiner rejected claims 23 and 27 under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by Mostafa. Applicant submits that Mostafa does not teach each and every limitation set forth either of claim 23 as amended, or 27, and that these claims are allowable.

Mostafa does not teach "transmitting an identifier to the gateway using the first protocol, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream"

The Examiner cited to ¶¶ [0104] and [0106] in Mostafa and Mostafa's teaching of

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"Phase 2" as mapping to this limitation of claim 23. The Examiner also mapped the "sender," "MMS server," and "receiver" in Mostafa to the "terminal," "gateway," and "second terminal," respectively, of claim 23. (Current Final Office Action, pages 4-5). Applicant does not acquiesce in the Examiner's asserted mappings, but adopts them, *arguendo*, and submits, nevertheless, that the amendment to claim 23, described above, rules out the Examiner's mappings and any support for Mostafa anticipating claim 23.

Specifically, Mostafa devotes most of the Background section (namely, ¶¶[0007]-[0015]) to discussing MMS – why it was introduced (e.g., what supposed problems it was intended to solve) and how it works according to 3GPP standards. Mostafa then identifies particular shortcomings (according to Mostafa) of MMS, and then, in the Summary of the Invention section, discloses a purported invention that purportedly addresses the supposed shortcomings of MMS (e.g., ¶[0016]). Mostafa also touts purported advantages of MMS-based embodiments in ¶¶[0096]-[0100] (among others).

In particular, in ¶[0096] Mostafa teaches:

> *Advantageously*, the notification performed in phase 2, takes place *by means of a notification message sent* ***from the sender*** *via a Multimedia Messaging Server (MMS)* ***to the receiver***. (Emphasis added.)

In ¶[0104] Mostafa teaches that:

> [i]n the phase 2, the sender 21 sends a notification via the MMS server 23 to the receiver 24 about the media content being stored.

In ¶[0112], Mostafa teaches:

> *Phase 2 conforms to existing MMS standards* and thus provides backward compatibility with previously proposed mechanisms for non-streamed media content download. (Emphasis added.)

And in ¶[0125], Mostafa teaches:

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> According to the preferred embodiment of the invention, the existing ***MMS protocol*** *is used to provide* ***end-to-end*** *notification* of presentation description information *from the sender 21 to the receiver 24 via the MMSC* ***in phase 2***. (Emphasis added.)

Figure 2 in Mostafa clearly shows that the "Phase 2" notification from "sender 21" to "receiver 24" is MMS *end-to-end*. In particular, *the "Phase 2" notification is MMS from "sender 21" to "MMS server 23," and MMS from "MMS server 23" to "receiver 24."*

Accordingly, sending of the "Phase 2" notification *cannot* utilize anything *other than the same protocol* (i.e., MMS) from "sender 21" to "MMS server 23," and MMS from "MMS server 23" to "receiver 24." And Mostafa's emphasis on the advantages of using MMS for this specific purpose would have provided more than a little bit of discouragement for even considering modification of this aspect of Mostafa's teachings.

In contrast to Mostafa's teaching of using MMS from "sender 21" to "MMS server 23," and MMS from "MMS server 23" to "receiver 24," claim 23 recites, *inter alia*,

> transmitting [*from the terminal*] an identifier *to the gateway* ***using the first protocol***, wherein the identifier is configured for being used by the gateway to identify a *second terminal*, in order to be able to send a trigger *to the second terminal* ***using a second protocol different from the first protocol***, notifying the second terminal of the availability of the first stream. (Emphasis added.)

With the Examiner' mappings of the "sender," "MMS server," and "receiver" in Mostafa to the "terminal," "gateway," and "second terminal," respectively, of claim 23, the specification in the claim that the "first protocol" between the "terminal" and the "gateway" is *different* from the "second protocol" between the "gateway" and the "second terminal" rules out any mapping to claim 23 of Mostafa's teaching of end-to-end MMS messaging from the "sender" to the "receiver" via the "MMS server." And Mostafa, therefore, does not anticipate claim 23.

For at least the reasons above, Applicant submits that claim 23 is allowable.

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Claim 27 depends from claim 23, and is therefore allowable for at least the reason that it depends from an allowable claim. Further, Applicant does not concede any assertions by the Examiner in connection with claim 27.

Applicant further submits that withdrawn claims 24-26 are each allowable for at least the reason that each depends from claim 23, which is allowable for at least the reasons above. Applicant therefore respectfully requests that the Examiner rejoin and allow claims 24-26.

4. Response to Rejections under pre-AIA 35 U.S.C. § 103(a)

The Examiner rejected claims 1, 3-6, 8, 10-12, 15-17, 19, and 21 under pre-AIA 35 U.S.C. § 103(a) as allegedly being unpatentable over Mostafa. Applicant submits that modifying Mostafa's teachings in a manner asserted to be obvious by the Examiner is not supported by Mostafa's teachings, and, in any case, does not logically or reasonably lead to any of claims 1, 3-6, 8, 10-12, 15-17, 19, or 21 as amended, and that these claims are allowable. Applicant first addresses claim 1, then subsequently addresses claims 3-6, 8, 10-12, 15-17, 19, and 21.

Before discussing specific limitations of claim 1, Applicant first notes the Examiner's apparent mappings between Mostafa's teachings and claim 1. Namely, in the rejection under pre-AIA 35 U.S.C. § 103(a), the Examiner appeared to make the following alleged mappings between Mostafa and claim 1 (Current Final Office Action, pages 6-7):

- "sender" and "receiver" in Mostafa mapped to the "first terminal" and "second terminal" respectively, of claim 1
- RTSP or UDP used for "Phase 1" in Mostafa mapped to the "first protocol" used "to exchange first multimedia session information between the first terminal and the gateway" of claim 1.
- "MMS" used for "Phase 2" in Mostafa mapped to the "second protocol" used for the "trigger" of claim 1.

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- RTSP or UDP used for "Phase 1" in Mostafa mapped to the "third protocol" used "to initiate the exchange of the second multimedia session information between the gateway and the second terminal" of claim 1.

- "Phase 3" in Mostafa mapped to the "second media stream" of claim 1.

Applicant does not acquiesce in any of these mappings, but adopts them, *arguendo*, for purposes of the following discussion.

Mostafa does not teach or suggest a "gateway," nor does the teaching in Mosatafa of a "MMS server," "media server" and/or a "MMSC" render a "gateway" obvious

The Examiner conceded that "Mostafa does not state that the server is a gateway," but instead asserted,

> … as a gateway is a node connecting *two networks having different protocols* and Mostafa discloses that the MMSC may be in at least one of the networks (see paragraph 106), it would be obvious to implement Mostafa's MMSC in figure 2 as a gateway between the sender's and receiver's respective networks. (Current Final Office Action, page 7; emphasis added.)

Applicant respectfully submits that the Examiner's assertion that "it would be obvious to implement Mostafa's MMSC in figure 2 as a gateway between the sender's and receiver's respective networks" is unsupported by any teaching or suggestion in Mostafa, particularly in view the Examiner's offered definition of a "gateway [as] a node connecting two networks having different protocols."

First, there is no teaching or disclosure in Mostafa that the "sender," "server," or "receiver" are even in different networks. While Figure 2 depicts two "clouds" 26 and 27, Mostafa does not refer to either of them in the disclosure even once. And in ¶[0127] Mostafa teaches:

> [t]he invention may equally well be implemented in networks where the physical connections between *the various elements of* ***the*** *network* ***(sender 21, receiver 24 and network servers)*** are implemented partially or entirely by means of fixed line connections. (Current Final Office Action, page 7; emphasis added.)

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This clearly contemplates that "the sender's and receiver's respective networks" in Mostafa, as well as the server's network, are all the same network. This is also consistent with the designation in Figure 2 of "Sending mobile terminal" and "Receiving mobile terminal" – i.e., both mobile terminals being in the same mobile network.

Second, ¶[0106] in Mostafa, cited by the Examiner, discloses various configurations of the "media server 22" and the "MMS server 23," but teaches nothing about a relation between any of these configurations or any presumed different network of either "sender" or "receiver." In one configuration, both the "media server 22" and the "MMS server 23" may be "merged together or maintained as different entities in ***the*** network." (Emphasis added.) In another configuration they may be in separate networks. In any case, however, none of the configurations are in any way suggestive of a "gateway" or gateway functionality.

Third, even assuming, *arguendo*, that the "sender" and "receiver" in Mostafa are in two different networks and that the three phases disclosed in Mostafa traverse the "MMSC" in some manner, there is no teaching or suggestion in Mostafa that the "MMSC" and/or its component "media server" and/or "MMS server" act or function as "a node connecting two networks having different protocols." Rather, as described above, "Phase 2" uses MMS end-to-end, and for embodiments in which "Phase 1" and "Phase 3" implement streaming, Mostafa teaches that the *same* control protocol – namely, RTSP – is used at both ends:

> RTSP is believed to represent a best mode for enabling and controlling streaming *in phases 1* ***and*** *3*. (¶[0124]; emphasis added.)

Thus, Mostafa's teachings of the "MMSC" fail to meet the Examiner's stated definition of a "gateway." There is no teaching or suggestion in Mostafa that the "MMSC" functions to translate between different protocols in different network. And as such, a person of ordinary

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skill in the art ("POSITA") would not have found it obvious to "implement Mostafa's MMSC in figure 2 as a gateway between the sender's and receiver's respective networks" (again, assuming the "respective networks" were even different), since there would have been no reason to do so.

Finally, Mostafa's teachings of various protocols at different network layers should not be confused with different protocols being used in different networks, or interpreted in the sense of a gateway connecting different networks that use different protocols. More specifically, Mostafa teaches that streaming involves "steaming control and media transport," and that "streaming control" may be provided by RTSP and media transport may be provided by RTP, either or both of which may be carried over TCP or UDP, which are transport layer protocols. (¶¶ [0012], [0014], [0117].) A POSITA would understand, for example, that RTP carried over TCP or UDP is the same protocol in either case. Similarly, RTSP carried over TCP or UDP would be understood as the same protocol in either case. Thus, contrary to the Examiner's assertion, a POSITA would not have found it obvious to implement the "MMSC" as a gateway, because there is no teaching in Mostafa that would have prompted a POSITA to consider doing so. And in an unlikely hypothetical configuration in which some element in the "MMSC" of Mostafa were to use RTSP over UDP on one side and RTSP over TCP on the other side (or similarly for RTP), a POSITA would still not have had any reason or motivation to implement the "MMSC" as a gateway.

For at least the reasons above, Applicant submits that the teachings in Mosatafa of a "MMS server," "media server" and/or a "MMSC" does not render a "gateway" obvious.

Notwithstanding Applicant's traversal of the Examiner's assertion that implementing Mostafa's "MMSC" as a "gateway" would have been obvious, Applicant has amended claim 1, as described above, in a manner that further distinguishes over Mostafa and rules out Mostafa's

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teachings as rendering claim 1 obvious. In the following discussion, Applicant adopts, *arguendo* and without acquiescing in the Examiner's interpretation of Mostafa's teachings, the Examiner's obviousness mapping of the "MMSC" in Mostafa to the "gateway" of claim 1. Even with this adopted mapping as a modification to Mostafa's teachings, however, Applicant submits that Mostafa's modified teachings fail to logically or reasonably lead to claim 1.

Modifying the teachings of Mostafa does not logically or reasonably lead to: "using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol and sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media"

The Examiner cited to ¶[0104] in Mostafa as teaching "wherein the first multimedia session information includes a type of media," stating "the type of media to be streamed is specified, see paragraph 104 [in Mostafa]." (Current Final Office Action, page 6.) However, Mostafa teaches in the cited paragraph (and elsewhere) that the "type of media to be streamed" is part of the "presentation description information" carried in the MMS notification sent from the "sender" to the "receiver" via the "MMS server" in "Phase 2." As noted above, the Examiner mapped "MMS" used for "Phase 2" in Mostafa to the "second protocol" used for the "trigger" of claim 1.

In contrast, claim 1 specifies, *inter alia*, that the "type of media" is included in the "first multimedia session information," which is exchanged between "the first terminal and the gateway" using a "first protocol." But according to the Examiner's mapping, the "first protocol" corresponds to RTSP or UDP used for "Phase 1" in Mostafa. Thus, the Examiner's assertion regarding the above limitation is inconsistent with the Examiner's mappings of Mostafa's teachings to claim 1.

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Separate from the inconsistency in the Examiner's mapping, Mostafa's teachings fail by themselves to align with the above limitation of claim 1. To the extent that Mostafa may be interpreted as establishing a "first multimedia session according to the first protocol," it could not be interpreted as being established according to "MMS," which is what is used to send the MMS notification that includes the "type of media to be streamed." That is, the MMS could not, in any case, be mapped to the "first protocol" or the "exchange" that uses it in claim 1.

Modifying the teachings of Mostafa does not logically or reasonably lead to:

"wherein the exchange of the first multimedia session information establishes the first multimedia session according to the first protocol …,"

"wherein the exchange of the second multimedia session information establishes the second multimedia session according to the third protocol …,"

and

"wherein the first protocol, the second protocol, and the third protocol are all different"

Applicant notes that the Examiner's mapping of RTSP or UDP used for "Phase 1" in Mostafa to the "third protocol" used "to initiate the exchange of the second multimedia session information between the gateway and the second terminal" is inconsistent with the recited "exchange" being "*between the gateway and the second terminal*" (emphasis added), since "Phase 1" in Mostafa is between the "sender" and the "MMSC."

Further, the Examiner's citing to Mostafa's disclosure of UDP and RTSP as examples of different protocols that could be mapped to the "first protocol" and "third protocol" of claim 1 represents a misapprehension of the relationship between UDP and RTSP. More particularly, as a POSITA would have understood, RTSP may be carried *over* UDP (or TCP, for example), and would thus be used *with* UDP, not as an alternative protocol for either of "Phase 1" or "Phase 3" in Mostafa. Put another way, a POSITA considering, in claim 1, the "first protocol" used "to

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exchange first multimedia session information between the first terminal and the gateway" and the "third protocol" used "to initiate the exchange of the second multimedia session information between the gateway and the second terminal," would not have confused UDP as one option for the "first protocol," with RTSP as a different option for the "third protocol," for example (or vice versa), in order to achieve different "first" and "third" protocols, as required by claim 1. Even if RTSP over UDP were to be mapped to the "first protocol" and RTSP over TCP mapped to the "third protocol," for example, a POSITA would recognize the "first" and "third" protocols as being the same, contrary to claim 1.

Aside from the Examiner's apparent mischaracterization of UDP and RTSP as being alternatives for the "first" and "third" protocols of claim 1, the amended language of claim 1 rules out Mostafa's teachings in connection with the limitations above, when they are taken together.

Specifically, claim 1 as amended specifies, *inter alia*, establishment of "the first multimedia session according to the first protocol" and "the second multimedia session according to the third protocol," where "first protocol [...] and the third protocol are [...] different." The only teachings in Mostafa that might be interpreted as establishment of any multimedia sessions at all are those in connection with RTSP used in "Phase 1" and "Phase 3" for "enabling and controlling streaming." (¶[0124].) But in view of Mostafa's emphasis that RTSP be used for both "Phase 1" *and* "Phase 3," Mostafa might be interpreted at most as teaching "first" and "second" multimedia sessions established according to the *same* protocol, contrary to claim 1.

As a final aspect of distinction of claim 1 over Mostafa, Applicant submits that Mostafa does not teach or disclose anywhere either "exchange first multimedia session information

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between the first terminal and the gateway" or "exchange of the second multimedia session information between the gateway and the second terminal."

For at least the reasons above, Applicant submits that modifying Mostafa's teachings in a manner asserted to be obvious by the Examiner is not supported by Mostafa's teachings, and, in any case, does not logically or reasonably lead to claims 1, and that claim 1 is allowable.

Each of claims 16 and 17 include, *inter alia*, limitations largely similar to those of claim 1 that make claim 1 allowable. Applicant therefore submits that each of claim 16 and 17 are allowable for at least the reasons that claim 1 is allowable. Further, Applicant does not concede any of the Examiner's specific assertions in connection with either of claims 16 or 17.

Each of claims 3-6, 8, 10-12, 15, 19, and 21 depends from one or another of claims 1 or 17, both of which are allowable for at least the reasons above. Applicant therefore submits that each of claims 3-6, 8, 10-12, 15, 19, and 21 is allowable for at least the reason that each depends from an allowable claim. Further, Applicant does not concede any of the Examiner's specific assertions in connection with any of claims 3-6, 8, 10-12, 15, 19, or 21.

5. Claim Objections and Allowable Subject Matter

The Examiner objected to claims 2, 9, 18, 20, and 22 as being dependent upon a rejected base claim, but indicated these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant thanks the Examiner for the finding of allowable subject matter.

Each of claims 2, 9, 18, 20, and 22 depends from one or another of claims 1 or 17, both of which are allowable for at least the reasons above. Applicant therefore submits that each of claims 2, 9, 18, 20, and 22 is allowable for at least the reason that each depends from an allowable claim.

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Applicant thanks the Examiner for the finding of allowable subject matter.

6. Conclusion

For the foregoing reasons, Applicant submits that the claims are allowable. Therefore, Applicant requests favorable reconsideration and allowance of the claims.

Applicant does not acquiesce in any assertion in the Current Final Office Action that is not expressly addressed by these remarks.

Should the Examiner wish to discuss this case with the undersigned, the Examiner is invited to call the undersigned at (312) 913-3353.

Respectfully submitted,

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Date: September 11, 2023

By: /David A. Grabelsky/
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/413,052	Filing Date 05/15/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ 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	09/07/2023	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 24	Minus	** 27	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	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

		(Column 1)		(Column 2)	(Column 3)			
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".	/PATRICIA F LEWIS/
*** 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.
16/413,052	05/15/2019	Hans Maarten Stokking	10-406-CON-REI	9330

20306 7590 03/14/2023

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP
300 S. WACKER DRIVE
32ND FLOOR
CHICAGO, IL 60606

EXAMINER	
HENEGHAN, MATTHEW E	

ART UNIT	PAPER NUMBER
3992	

NOTIFICATION DATE	DELIVERY MODE
03/14/2023	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):

docketing@mbhb.com

Office Action Summary	Application No. 16/413,052	Applicant(s) Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	AIA (FITF) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 04 February 2022.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-6,8-12,15-23 and 27 is/are pending in the application.

5a) Of the above claim(s) 24-26 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1,3-6,8,10-12,15-17,19,21,23 and 27 is/are rejected.

8) ☑ Claim(s) 2,9,18,20 and 22 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 15 May 2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☑ Certified copies of the priority documents have been received in Application No. 12808665.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 2/15/23.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. For reissue applications filed on or after September 16, 2012, all references to 35 U.S.C. 251 and 37 CFR 1.172, 1.175, and 3.73 are to the current provisions.

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

4. In response to the previous Office Action, Applicant has amended claim 23. Claims 1-6, 8-12, 15-23, and 27 have been examined. Claims 24-26 stand as withdrawn.

Priority

5. The instant application is a broadening reissue of U.S. Patent Application No. 14/015,765, filed 30 August 2013, now U.S. Patent No. 9,654,330 (hereinafter the '330 patent), issued 16 May 2017. The '330 patent was filed as a continuation of U.S. Patent Application No. 12/808,665, filed 16 June 2010, now U.S. Patent No. 8,549,151 (hereinafter the '151 patent), which was a national stage entry of PCT application PCT/EP08/11014, filed 22 December 2008, which claimed priority to Provisional U.S. Patent Application No. 61/008,664, filed 21 December 2007, and foreign priority to European Patent Application No. EP08002517.4, filed 21 February 2008.

Information Disclosure Statement

6. The information disclosure statement (IDS) submitted on 15 February 2023 was filed after the mailing date of the non-final rejection on 2 August 2022. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

7. The indicated allowability of claims 1-6, 8-12, and 15-22 is withdrawn in view of the newly discovered reference included in the IDS.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 23 and 27 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by China Patent Publication No. CN1393090A (hereinafter Mostafa). NOTICE: All citations to Mostafa are being made to an English language version of this reference, U.S. Patent Application Publication No. 2002/0073205 to Mostafa.

As per claim 23, Mostafa discloses a terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that (a sender, see paragraphs 101, 102, and 125), when executed by the computing device, causes the terminal to carry out operations including: initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway (see paragraph 103 and 106; the recipient server can be any suitable node, as its functionality as a "gateway" is outside of the scope of the claimed terminal), wherein the exchange of the first multimedia session information sets up a first media stream originating from the terminal (see details of phase 1, paragraphs 102, 103, and 107), and wherein the first multimedia session information includes a type of media (UDP or RTSP can be used for the phase 1 uploading, see paragraph 115-116); and transmitting

an identifier to the gateway (see phase 2, paragraph 104; the MMS server may be part of the media server, see paragraph 106), wherein the identifier is configured for being used by the gateway to identify a second terminal (details of an access mechanism by use of which media content can be retrieved from the media server, see paragraph 104), in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream (notification is sent to the receiver via the media server, see paragraph 104).

As per claim 27, the terminal may be a cellular radiotelephone having data and voice (i.e. multimedia) capabilities (see paragraph 125).

Claim Rejections - 35 USC § 103

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

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-6, 8, 10-12, 15-17, 19, and 21 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Mostafa.

NOTICE: All citations to Mostafa are being made to an English language version of this reference, U.S. Patent Application Publication No. 2002/0073205 to Mostafa.

As per claim 1, Mostafa discloses a method, wherein a gateway is capable of communicating with a first terminal and a second terminal (see figure 2, with the MMS and Media servers in the place of the claimed gateway), the method comprising: the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway (UDP or RTSP can be used for the phase 1 uploading, see paragraphs 101-103, 114-116), wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal (see paragraph 103), and wherein the first multimedia session information includes a type of media (the type of media to be streamed is specified, see paragraph 104); the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal (see phase 2, paragraph 104), wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream (see paragraphs 104 and 121); in response to receiving the trigger (see paragraphs 98 and 109), the second terminal using a third protocol (UDP or RTSP can be used for the phase 1 uploading, see paragraphs 101-103, and 114-116) to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates (phase 3, see paragraph 105); and the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream (the stream in phase 3 corresponds to

the stream in phase 1, see paragraph 105), wherein the first protocol, the second protocol, and the third protocol are all different (phases 1 and 3 can use either UDP, RTSP, or a third protocol in the alternative, see paragraph 124; phase 2 uses MMS).

Mostafa does not state that the server is a gateway; however, as a gateway is a node connecting two networks having different protocols and Mostafa discloses that the MMSC may be in at least one of the networks (see paragraph 106), it would be obvious to implement Mostafa's MMSC in figure 2 as a gateway between the sender's and receiver's respective networks.

Regarding claim 3, the gateway forwards session information received form the sender (see paragraph 103).

Regarding claims 4-6, since the sender sends a notification to the receiver via the gateway (see paragraph 104), it is implicit that the address of the receiver to the gateway, so that the triggering notification can be properly forwarded, that the gateway can resolve into an address of the receiver.

Regarding claim 8, the two media streams can be the same (see paragraphs 105, the discussion is about the same streams in phases 1 and 3).

Regarding claim 10, the third protocol is a client-server protocol (either UDP or RTSP). Since the receiver is not being used as a server, the server-side capabilities do not need to be on it.

Regarding claim 11, the network address of the media server is included in the triggering notification (see paragraph 103).

Regarding claim 12, where HTTP is being used for receiver-side transactions (see paragraph 115), the network address would be a URI.

Regarding claim 15, the first and second sessions are associated (see paragraph 105).

Regarding claim 16, Mostafa discloses an article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device (a sender, see paragraphs 101, 102, and 125), cause the computing device to perform operations comprising: using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway (UDP or RTSP can be used for the phase 1 uploading, see paragraphs 101-103, 114-116), wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal (see paragraph 103), and wherein the first multimedia session information includes a type of media (the type of media to be streamed is specified, see paragraph 104); using a second protocol to provide a trigger to a second terminal (see phase 2, paragraph 104), wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream (see paragraphs 104 and 121); using a third protocol (UDP or RTSP can be used for the phase 1 uploading, see paragraphs 101-103, and 114-116) to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates (phase 3, see paragraph 105); and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal (although it is not explicitly stated by Mostafa, connection-oriented protocols, such as TCP and RTSP, uses responses from the recipient of a transmission to signify that it is ready for additional data blocks), wherein the second media stream to the second terminal is associated with the first media stream from the first terminal (the stream in phase 3 corresponds to the stream in phase 1, see paragraph 105), wherein the first protocol, the second protocol, and the third protocol are all different (phases 1 and 3 can use either UDP, RTSP, or a third protocol in the alternative, see paragraph 124; phase 2 uses MMS).

Mostafa does not state that the server is a gateway; however, as a gateway is a node connecting two networks having different protocols and Mostafa discloses that the MMSC may be in at least one of the networks (see paragraph 106), it would be obvious to implement Mostafa's MMSC in figure 2 as a gateway between the sender's and receiver's respective networks.

Regarding claim 17, Mostafa discloses a server comprising: a communication interface; memory that stores software instructions that, when executed by the gateway, cause the gateway to: (i) exchange first multimedia session information with a first terminal using a first protocol (UDP or RTSP can be used for the phase 1 uploading, see paragraphs 101-103, 114-116), wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal (see paragraph 103), and

wherein the first multimedia session information includes a type of media (the type of media to be streamed is specified, see paragraph 104), (ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol (see phase 2, paragraph 104), in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream (see paragraphs 104 and 121), and (iii) exchange second multimedia session information with the second terminal, using a third protocol (UDP or RTSP can be used for the phase 1 uploading, see paragraphs 101-103 and 114-116), wherein the third protocol is different from the first protocol (phases 1 and 3 can use either UDP, RTSP, or a third protocol in the alternative, see paragraph 124), wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates (phase 3, see paragraph 105), wherein the first protocol, the second protocol, and the third protocol are all different (phases 1 and 3 can use either UDP, RTSP, or a third protocol in the alternative, see paragraph 124; phase 2 uses MMS).

Mostafa does not state that the server is a gateway; however, as a gateway is a node connecting two networks having different protocols and Mostafa discloses that the MMSC may be in at least one of the networks (see paragraph 106), it would be obvious to implement Mostafa's MMSC in figure 2 as a gateway between the sender's and receiver's respective networks.

Regarding claim 19, since the sender sends a notification to the receiver via the gateway (see paragraph 104), it is implicit that the address of the receiver to the gateway, so that the triggering notification can be properly forwarded, that the gateway can resolve into an address of the receiver.

Regarding claim 21, the first and second sessions are associated (see paragraph 105).

Allowable Subject Matter

9. Claims 2, 9, 18, 20, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, Mostafa does not state at least part of the second multimedia session information is provided to the first terminal.

Regarding claim 9, Mostafa's use of a server between the sender and receiver requires client-server protocols for transfers, rather than peer-to-peer.

Regarding claims 18, 20, and 22, no art could be found that could be incorporated into Mostafa to allow for the use of SIP in that context.

Conclusion

11. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 15 February 2023 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW E HENEGHAN whose telephone number is (571)272-3834. The examiner can normally be reached on M-F 8-5.

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, Michael Fuelling can be reached on (571)270-1367. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/MATTHEW E HENEGHAN/
Primary Examiner, Art Unit 3992

Conferees:
/MINH DIEU NGUYEN/
Primary Examiner, Art Unit 3992
/MICHAEL FUELLING/
Supervisory Patent Examiner, Art Unit 3992

Notice of References Cited	Application/Control No. 16/413,052	Applicant(s)/Patent Under Reexamination Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	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-20020073205-A1	06-2002	Mostafa, Miraj	H04L65/65	709/227
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N	CN-1393090-A	01-2003	CN	MIRAJ M	H04L12/587
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

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

CLAIM		DATE								
Final	Original	01/07/2021	08/10/2021	07/22/2022	03/08/2023					
	1	✓	✓	=	✓					
	2	✓	✓	=	O					
	3	✓	✓	=	✓					
	4	✓	✓	=	✓					
	5	✓	✓	=	✓					
	6	✓	✓	=	✓					
	7	✓	✓	-	-					
	8	✓	✓	=	✓					
	9	✓	✓	=	O					
	10	✓	✓	=	✓					
	11	✓	✓	=	✓					
	12	✓	✓	=	✓					
	13	✓	✓	-	-					
	14	✓	✓	-	-					
	15	✓	✓	=	✓					
	16	✓	✓	=	✓					
	17	✓	✓	=	✓					
	18	✓	✓	=	O					
	19	✓	✓	=	✓					
	20	✓	✓	=	O					
	21	✓	✓	=	✓					
	22	✓	✓	=	O					
	23	✓	✓	✓	✓					
	24	N	N	N	N					
	25	N	N	N	N					
	26	N	N	N	N					
	27	✓	✓	✓	✓					

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

CPC - Searched*		
Symbol	Date	Examiner
H0429/08522,06517;H0465/1069,1006,4076,104,103,1016,608	01/07/2021	MH
H04L67/1091;H04L69/08	01/07/2021	MH

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 keyword and class searches	01/07/2021	MH
Review of previous search	08/10/2021	MH
PE2E Update search, see notes	07/22/2022	MH
NPL search	07/22/2022	MH
Update Searches, Global Dossier, PTAB searches	03/08/2023	MH

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

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

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16413052
Filing Date	2019-05-15
First Named Inventor	Hans Maarten Stokking
Art Unit	3992
Examiner Name	Matthew E. Heneghan
Attorney Docket Number	10-406-CON-REI

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					

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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
	1	20080291905	A1	2008-11-27	Chakravadhanula et al.	
	2	20040125757	A1	2004-07-01	Mela et al.	

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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	2007071461	WO	A	2007-06-28	ERICSSON TELEFON AB L M et al.		
	2	1947401	CN	A	2007-04-11	NOKIA CORP	English language machine translation included.	X

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.E.H/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16413052
Filing Date	2019-05-15
First Named Inventor	Hans Maarten Stokking
Art Unit	3992
Examiner Name	Matthew E. Heneghan
Attorney Docket Number	10-406-CON-REI

	3	1976346	CN	A	2007-06-06	HUAWEI TECH CO LTD	English language machine translation included.	☒
	4	1393090	CN	A	2003-01-22	NOKIA CORP	English language machine translation included.	☒

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NON-PATENT LITERATURE DOCUMENTS Remove

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	Kahmann, Verena, and Lars Wolf. "Collaborative media streaming in an in-home network." In Proceedings 21st International Conference on Distributed Computing Systems Workshops, pp. 181-186. IEEE, 2001.	
	2	Singh, Kundan, and Henning G. Schulzrinne. "Unified messaging using SIP and RTSP." (2000).	
	3	"Internet Principles and Technology," Edited by Zhao Jinrong, Tsinghua University Press (Beijing Tsinghua University Academic Research Building, Zip Code 100084), 2000, Excerpt.	☒
	4	"Soft Switching and IMS Technology," Yang Fangchun and Sun Qibo, Beijing University of Posts and Telecommunications, 2007, Excerpt.	☒

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EXAMINER SIGNATURE

Examiner Signature	/MATTHEW E HENEGHAN/	Date Considered	03/06/2023

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16413052
Filing Date	2019-05-15
First Named Inventor	Hans Maarten Stokking
Art Unit	3992
Examiner Name	Matthew E. Heneghan
Attorney Docket Number	10-406-CON-REI

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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

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See attached certification statement.

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

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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	/David A. Grabelsky/	Date (YYYY-MM-DD)	2023-02-15
Name/Print	David A. Grabelsky	Registration Number	59208

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Patents CN1393090A

Method for forming multimedia streaming session

Abstract

A communication method, comprising the steps of a sender 21 sending a message comprising at least one streamable component and information describing it to a communication server MMSC and the communication server responsively sending to a receiver 24 a notification message to notify about the availability of the streamable component. The notification message is a multimedia message comprising the description for the streamable component. The communication server MMSC and the receiver form a streaming session for transferring the streamable component using the information describing the streamable component. The communication server MMSC then streams the streamable component to the receiver 24 in sequential sub-parts in the streaming session. Corresponding to the method, a communication system 20, a communication server MMSC, a communication device 21,24 and computer program products for them are also described.

Classifications

- H04L51/58 Message adaptation for wireless communication

View 6 more classifications

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Other languages: Chinese

Inventor: M·莫斯特法

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Info: Patent citations (200), Cited by (75), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Claims (20)

Hide Dependent

1. communication means comprises step:

By the communication server received content and the information of describing described content from first terminal;

Send a notification message from the described communication server to second terminal, described notification message notice can receive described content;

It is characterized in that described method also comprises:

Utilize the information of described description content between the described communication server and second terminal, to form the stream transmission dialogue; With

Send described content to described second terminal in described stream transmission session form with the order subdivision from the described communication server.

2. communication means as claimed in claim 1 is characterized in that, described method comprises that also the form of message to separate sends to the described communication server with described content and the information of describing content from described first terminal

3. communication means as claimed in claim 1 or 2 is characterized in that, described method also comprises by the described communication server and sends the information of described description content to described second terminal as the media weight of Multimedia Message.

4. as each described communication means in the above-mentioned claim, it is characterized in that described content comprises the description of at least one non-stream component and at least one streaming component.

5. each described communication means as in the above-mentioned claim is characterized in that, described method also be included in the described communication server transmit described content give described second terminal before described second terminal request obtain described content.

6. as each described communication means in the above-mentioned claim, it is characterized in that described method also is included in described first terminal and produces described content.

7. communication means as claimed in claim 6 is characterized in that, described method also comprises the step of will transmit as a stream in the described content of described first terminal generation in the described communication server.

8. as claim 6 or 7 described communication means, it is characterized in that described method also is included in the generation of described content and finishes the step that sends the information of described description content before.

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9. as each described communication means in the above-mentioned claim, it is characterized in that described method also is included in the step that in the described notification message information of described description content is sent to described second terminal from the described communication server.

10. as each described communication means in the above-mentioned claim, it is characterized in that, the described communication server comprises and is used to the announcement server storing and transmit the content server of described content and be used to receive and transmit described notification message. it is characterized in that described content server and announcement server have physical relation, described physical relation from by single unit, separate units, be distributed in the group that the separate units of diverse geographic location forms and select.

11., it is characterized in that described method also comprises as the part of Multimedia Message service (MMS) carries out described method as each described communication means in the above-mentioned claim.

12. as each described communication means in the above-mentioned claim, it is characterized in that described method also comprises and sends described content multichannel to except that described second terminal at least one other terminal.

13. a communication system (20) comprising:

The a plurality of terminals (21,24) that comprise first terminal (21) and second terminal (24);

The communication server of addressable described a plurality of terminals (MMSC);

Be used for sending content and describing the device (52) of the information of content to the described communication server (MMSC) from described first terminal (21); And

Be used for sending a notification message to the device (23) of described second terminal (24) from the described communication server, described notification message notifies described second terminal (24) can receive described content;

It is characterized in that described system also comprises.

Utilize the information of described description content between the described communication server (MMSC) and second terminal (50), to form the device (22 that stream transmission is talked with, 52);

Described content is sent to the device (22) of described second terminal (24) with the form of order subdivision at described stream transmission session from the described communication server

14. communication system as claimed in claim 13 is characterized in that, described communication system also is included in the device (25) that described first terminal (21) produces described content.

15. as claim 13 or 14 described communication systems, it is characterized in that, the described communication server (MMSC) comprises announcement server (23), in order to the information of the described description content of reception from described first terminal (21), and sends described notification message to described second terminal (24).

16. as each described communication system in the claim 13 to 15, it is characterized in that, the described communication server also comprises content server (22), in order to the described content of reception from described first terminal (21), and sends described content to described second terminal (24).

17. a communication server (MMSC) that is used to serve a plurality of terminals (21,24), the described communication server comprises:

The device of the information of received content and the described content of description from first terminal (21), And

Notification message is sent to the device of second terminal (24), and described notification message notifies described second terminal can receive described content;

It is characterized in that the described communication server (MMSC) also comprises:

Utilize the information of described description content and form the device (22) that stream transmission is talked with described second terminal; And

Described content is sent to the device (22) of described second terminal at described stream transmission session with the form of order subdivision.

18. a computer program comprises:

Computer program code can make the communication server received content and the information of describing described content from first terminal; And

Computer program code can make the described communication server send a notification message to second terminal, and described notification message notifies described second terminal can receive described content;

It is characterized in that described computer program also comprises:

Computer program code can make the described communication server utilize the information of described description content to form the stream transmission dialogue between the described communication server and second terminal; And

Computer program code can make the described communication server send described content to described second terminal with the form of order subdivision at described stream transmission session.

19. a communication equipment (21,24) comprising:

Be used for from the middle device (52) that receives the information of the required describing message of described communication equipment (21,24) of the communication server (MMSC, 23);

It is characterized in that,

Described message comprises the streaming component; And

The information of described describing message comprises the information of describing described streaming component;

Described communication equipment (21,24) also comprises:

Utilize the information of described description streaming component and form the device (52,55) of stream transmission dialogue to receive described streaming component with the described communication server (MMSC); And

From the described communication server with the device (52) of the form received content of order subdivision.

28. a computer program comprises:

Computer program code can make communication equipment receive the information of the required describing message of described communication equipment from the communication server;

It is characterized in that,

Described message comprises the streaming component; And

The information of described describing message comprises the information of describing described streaming component;

Described computer program also comprises:

Computer program code can make described communication equipment form the stream transmission dialogue to receive described streaming component by the information of utilizing described description streaming component with the described communication server; And

Computer program code can make form from the described communication server received content of described communication equipment with the order subdivision.

Description

Form the method for multimedia streaming transmission dialogue

The present invention relates to communication service, especially but do not relate to stream transmission in the Multimedia Message service (MMS) uniquely.

Email (email) is a kind of message passing service, can allow to carry out quick, economic communication with electronic format.Email message can be delivered to all over the world by the internet, and all is free in many cases.In addition, identical email message can send a plurality of recipients to.This technology is called multichannel and transmits.Because the transmission of email message is fully automatically, so email message can be sent in very short time after transmission.Email message can carry computer documents such as document, program file and different media file such as audio or video montages.

The ordinary family user who has personal computer (PC) is unwilling PC for good and all is connected with their e-mail system (for example internet), but wishes that reading the dialogue back at last once email message sets up interim with long-range being connected with the e-mail server of storing message.Utilize this connection and email message fetch program, new email message can be sent to the memory or hard disk of PC from e-mail server, reads or reads behind connection closed when connecting then.Data between PC and the e-mail server transmit utilizes the modulator-demodulator that is connected with PC to carry out usually.

Hereinafter, term " transmitter " is meant the device that is used to transmit the receiver desired data, and " receiver " is meant that being used to receive data and data wishes the device sent to.

Fig. 1 has represented the schematic diagram based on the e-mail system 10 of internet, and it comprises transmitter 11, receiver 15, have the internet 12 of the e-mail server 14 of the e-mail server 13 of transmitter and receiver.

In the internet, email message utilizes some well-known agreements to transmit.Briefly, in a single day email message is finished writing and just is divided into the individual unit that indicates the receiver address, and sends the e-mail server of transmitter to.The e-mail server of transmitter is transmitted to message the e-mail server of receiver by the internet.When next step receiver is connected with the e-mail server of receiver by the internet and checks that by the Email fetch program when whether having received new Email, receiver can be by connecting any email message newly received of (connecting as modulator-demodulator) download.When receiving email message fully, receiver can be shown to the user with it.It should be noted, in each stage transmitting, usually email message is divided into many little packets of information according to the data transfer protocol that is utilized.When receiving, receiver with correct order (if required) combination, is redeveloped into original form with email message with them with all packet collections together, at last email message is shown to the user of receiver.

Above-mentioned Email transport system is very convenient, and can realize that multichannel transmits, but its most suitable reception email message and at user's display message when an opportunity arises, this also is its initial purpose.Therefore, the content of given email message can only finish email message could be accessed after the transmission of receiver.There is not real problem in this concerning the email message of plain text format, but just exists shortcoming for a large amount of medium or content of multimedia (montage), and promptly the receiver user can't download still startup demonstration montage when carrying out.Another shortcoming is in order to receive email message, and receiver must have enough big internal memory to hold whole message.Be in any other network that is formed by dedicated radio link at mobile communications network or part communication line particularly, also having a problem is to receive interim loss that whether long email message can be covered by for example radio or deterioration and take place to interrupt or mistake.Portable terminal also has only limited internal memory to store the email message that receives, and this has further aggravated the problem relevant with hold message in receiver.Can alleviate these problems at least in part by Multimedia Message service (MMS).

MMS is a kind of novel end-to-end message method, is used to have the one-way transmission of the Multimedia Message of text and/or content of multimedia.MMS provides in the possibility that sends Multimedia Message between the mobile subscriber and between mobile subscriber and the internet.This is the solution of having reached common understanding of carrying out the MMS in the 3G (Third Generation) Mobile network.V.3.0.1 in " Multimedia Message service (MMS), functional description, the second level (version in 1999) " the current definite feature of MMS that is proposed has been described in third generation collaborative project (3GPP) technical specification 23.140.The MMS that proposes in 3GPP 23.140 utilizes store and forward mode to transmit Multimedia Message.Multimedia Message is built into the address information of media content, description content information necessary and the desirable receiver of identification Multimedia Message is packaged together.Then Multimedia Message is sent to MMS center MMSC, the latter can receive this Multimedia Message to the receiver notice again.Receiving terminal is integrally downloaded Multimedia Message, in case download finish and be stored in the receiving terminal after just be shown to the user.

Though what it should be understood that the common description of term " Multimedia Message " is the message that contains the content that surpasses a type, in this used, this term extended to the message that only contains a kind of medium type.

Current specified MMS has receiving terminal must be stored Multimedia Message before Multimedia Message is shown to the user shortcoming.Therefore, the memory size of receiving terminal has determined the upper limit of the Multimedia Message size that can download.International Patent Application WO 99/166746 has solved this problem by when whole information is not suitable for the memory of receiving terminal message being divided into a plurality of sub-message (fragment).This a little message is very little, is enough to make receiving terminal each sub-message entirely can be downloaded separately.In this case, receiving terminal is at first

downloaded the first sub-message.After having downloaded the first sub-message fully, receiving terminal can show the first sub-message.Receiving terminal can be downloaded the second sub-message and show the second sub-message after having shown the first sub-message.Download each sub-message and show each sub-message individually.The size of sub-message is decided by the memory size of receiving terminal, and it must be little of depositing in the memory.

Except MMS, in the internet, also utilize the stream transmission technology to come to transmit information by fixed line.Term " stream transmission " is generally used for being described in and shows this or these Media Stream when Media Stream sends the client to by data network in a continuous manner, for example audio or video stream, or the combination of various flows." stream " typically refers to the data flow that can make receiver show some continuous datas such as motion picture, sound or music.In typical video flowing, per second transmits 10 to 20 two field pictures.In fact, stream transmission can be live (in real time), or carry out with the request pattern.Shown in its title like that, " live stream transmission " described from live source, as by forming Media Stream the digital image stream that video camera produced, and " stream transmission of request formula " described from for example be stored in the file the server and formed Media Stream.Stream transmission also relates to sets up the stream transmission dialogue, and information flow sends the client to during this period.

Stream transmission has two crucial functions, i.e stream transmission control and media delivery.Stream transmission control relates to that utilization has been consulted or pre-configured parameter value group is set up, managed and stop the stream transmission dialogue.Media delivery relates to utilizes the host-host protocol of having agreed or having consulted to come transmission medium in the process of setting up dialogue.For example, have the agreement of reaching extensive common recognition in the internet, the function of stream transmission control and media delivery can be provided, these agreements can be as host-host protocol in stream transmission is used.

Though stream transmission is widely used in the internet, but still need adjust it, in mobile communications network, use being suitable for.It should be understood that because portable terminal only has limited storage capacity (memory) usually, therefore in the mobile network, wish to use stream transmission.Yet present mobile communications network is not supported stream transmission, and its reason is as described below.

Stream transmission as the single packaging body that includes media content, message semantic definition and address information that proposed in the current MMS standard and media content is incompatible.In order to set up the dialogue of stream transmission, receiving terminal need be known the certain information relevant with media content in advance.These information include but not limited to be included in the medium type in the Multimedia Message, the coded system of medium, and the suitable host-host protocol that can be used to media content download.Because current MMS standard need be described the information and the Multimedia Message itself of media content and be packaged together, receiving terminal can't obtain the priori about the media content attribute, thereby can't set up any type of stream transmission dialogue.Therefore, according to present MMS standard, whole multimedia message must be downloaded in the receiving terminal to extract the details of content of multimedia.Have only after this and could play any media content, for example the user of receiving terminal is given in the video and/or audio montage.Because multimedia clips has a large amount of positions usually, thereby receiving terminal such as the relatively large memory of mobile radio station needs fully receive montage, and this has just limited the use of current MMS.Multimedia Message needs fully to download before demonstration, for example when Multimedia Message is very big, when perhaps the data transmission rate of Lian Jieing is very low, has also produced significant delay under certain condition.

What it is again emphasized that is can not be promoted to transmit as a stream in this system by the addressing scheme that current MMS standard is advised.Current MMS can be considered the system of " towards transmitter " in other words, the transmitter decision sends to receiver with which kind of media content, media content is encapsulated in the Multimedia Message and with it sends required receiver to.On the other hand, stream transmission is more prone to " towards receiver ".Transmit dialogue as a stream for setting up, need for example form stream transmission between the network-based services device and connect at receiver and transmitter usually, in case set up necessary connection, just streaming transmission from server of content.Therefore, the foundation of stream transmission dialogue needs receiver to know the position of media content, but does not need directly addressing receiver of requirement media content.

Invented a kind of new solution now, it can be avoided or alleviate the problems of the prior art at least.

According to a first aspect of the invention, provide a kind of communication means, comprised step:

By the communication server received content and the information of describing this content from first terminal, And

Send a notification message from the communication server to second terminal, notification message notice can received content;

It is characterized in that described method also comprises:

Utilize the information of describing content between the communication server and second terminal, to form the stream transmission dialogue; And

From the communication server, send content to second terminal at the stream transmission session with the form of order subdivision.

Content fully is received owing to utilize the receiver of second terminal not need by the time, therefore sends content to second terminal with the form that flows and can allow content is carried out fast access.

The information of content and description content preferably sends to the communication server with the form of message of separating from first terminal.This just allows to send dividually, for example content is sent to a communication server and notification message is sent to receiver.

The information of describing content is preferably in the notification message and sends to second terminal from the communication server.

Described method comprises also that preferably the information that will describe content by the communication server sends to second terminal as the media weight of Multimedia Message.

Transmission allows to utilize existing multi-media messaging system as the description of the streaming component of media weight in the minor variations scope.It also allows to embed in same Multimedia Message and surpasses a media weight, and some of them or all media weights can be the descriptions of streaming component.

Multimedia Message preferably includes the description of at least one non-stream component and at least one streaming component.

Communication means preferably also is included in the stream transmission session shows the content that is received in second end with the form of stream step.Second terminal can start and displaying contents at once, and can carry out certain operation (reportedly sending as time-out or terminating number) during transmitting.

Described method preferably also is included in second end decision at received content whether sometime, and if the decision received content just form the step of stream transmission dialogue.

The communication server preferably includes and is used to the announcement server storing and transmit the content server of content and be used to receive and transmit notice, wherein content server and announcement server have physical relation, this physical relation from by single unit, separate units, be distributed in the

group that the separate units of diverse geographic location forms and select.

Communication means preferably also is included in the step that first end produces content.The content that produces in first end preferably flows to content server, and content be transmitted in produce content during carry out.Thereby, with content first end fully produce or most of the generation after flow to content server again and compare, the user just can earlier obtain content.

When adopting the generation of flowing content, the information of description content is preferably in the content generation and finishes transmission before, and therefore second terminal can begin received content before the content generation is finished.

Stream transmission session between the communication server and second terminal, receiver preferably can be issued to stop ordering and stop talking with.Stream transmission dialogue preferably response stops order and stops.

Notification message preferably includes the desired information of second terminal, so that form the stream transmission dialogue with content server.

Described method is preferably carried out as the part of Multimedia Message service (MMS).

Described method preferably also is included in the step that at least one other stream transmission dialogue the content multichannel is sent at least one other terminal except that second terminal.

In the embodiment with a plurality of stream transmission dialogues, each stream transmission dialogue can form with other stream transmission dialogue relatively independently, and therefore dialogue can begin or finish in different time or identical time.Each dialogue preferably can respond each terminal and be independent of other stream transmission dialogue and stop.

A kind of communication system is provided according to a second aspect of the invention, has comprised:

A plurality of terminals with first terminal and second terminal,

The communication server of addressable a plurality of terminals;

Be used for sending content and describing the device of the information of content to the communication server from first terminal; And

Be used for sending a notification message to the device of second terminal from the communication server;

It is characterized in that described system also comprises:

Utilize the information of describing content between the communication server and second terminal, to form the device of stream transmission dialogue; And

Content is sent to the device of second terminal with the form of order subdivision at the stream transmission session from the communication server.

Described system preferably also comprises the device that can produce content in first end.

Described system preferably also comprises the device that can show the content that is received at the stream transmission session in second end with the form of stream.

A kind of communication server that is used to serve a plurality of terminals is provided according to a third aspect of the invention we, and the described communication server comprises:

The device of the information of received content and description content from first terminal; And

Notification message is sent to the device of second terminal, and notification message notifies second terminal can received content;

It is characterized in that described server also comprises:

Utilize the information and second terminal of describing content to form the device that stream transmission is talked with, And

Content is sent to the device of second terminal at the stream transmission session with the form of order subdivision.

A kind of computer program that provides according to a forth aspect of the invention comprises:

Computer program code can make the communication server received content and the information of describing content from first terminal; And

Computer program code can make the communication server that notification message is sent to second terminal, and notification message notifies second terminal can received content;

It is characterized in that described computer program also comprises.

Computer program code, the information that can make communication server utilization describe content form the stream transmission dialogue between the communication server and second terminal; And

Computer program code can make the communication server send content to second terminal with the form of order subdivision at the stream transmission session.

A kind of communication equipment is provided according to a fifth aspect of the invention, and it comprises:

Be used for from the device of the information of the required describing message of communication server received communication equipment.

It is characterized in that,

Described message comprises the streaming component;

The information of describing message comprises the information of describing the streaming component; And

Described communication equipment also comprises:

Utilize the data of describing the streaming component and form the stream transmission dialogue, so that receive the device of streaming component with the communication server; And

From the communication server with the device of the form received content of order subdivision.

A kind of computer program is provided according to a sixth aspect of the invention, has comprised:

Computer program code can make the information of the required describing message of communication equipment received communication equipment from the communication server;

It is characterized in that,

Described message comprises the streaming component;

The information of describing message comprises the information of describing the streaming component; And

Described computer program also comprises:

Computer program code can make communication equipment form the stream transmission dialogue by utilizing the information of describing the streaming component with the communication server, so that receive the streaming component; And

Computer program code can make form from the communication server received content of communication equipment with the order subdivision.

Communication equipment is preferably Wireless Telecom Equipment, and mobile phone preferably.In another embodiment, Wireless Telecom Equipment is a wireless communication adapter, can provide radio communication function to external equipment such as Desktop PC.

Provide a kind of communication equipment used method according to a seventh aspect of the invention, described method comprises step:

The information of the required describing message of received communication equipment from the communication server;

It is characterized in that,

Described message comprises the streaming component,

The information of describing message comprises the information of describing the streaming component; And

Described method also comprises step:

By utilizing the information And Communication server of describing the streaming component to form the stream transmission dialogue, so that receive the streaming component; And

Show the streaming component at the stream transmission session.

Embodiment according to an aspect of the present invention also can be applicable to each others of the present invention Briefly, repeatedly each aspect with invention is relevant for all embodiment.Those skilled in the art can understand the advantage of each others and embodiment on the basis of the advantage of first aspect present invention and embodiment.

The present invention will and be described with reference to the accompanying drawings by example, wherein:

Fig. 1 is based on the schematic diagram of the e-mail system of internet;

Fig. 2 is the figure of communication system according to the preferred embodiment of the invention;

Fig. 3 has represented the master agreement layer that the stream data of system shown in Figure 2 transmits;

Fig. 4 has represented according to a preferred embodiment of the invention, sends the structure of message during the stream data between receiver and media server transmits.

Fig. 5 has represented according to a preferred embodiment of the invention, is incorporated into the block diagram of the mobile communication terminal of cellular radio;

Fig. 6 has represented to be used for according to another embodiment of the present invention the wireless adapter card of Desktop PC.

Hereinbefore by the agency of Fig. 1.

Then will summarize the preferred embodiments of the present invention tout court, and then at length be introduced with reference to figs. 2 to 6.

According to a preferred embodiment of the invention, stream transmission is incorporated in the Multimedia Message service (MMS).Need to carry out the process of three phases in this regard.In the phase I (stage 1), transmitter (transmission terminal) is with Multimedia Message, or more precisely media content sends medium (stream transmission) server to.In second stage (stage 2), one or more receivers (receiving terminal) are notified can to receive the media content that is transmitted.In the phase III (stage 3), media content is transmitted to receiver.The notice of carrying out in the stage 2 is preferably undertaken by through multimedia message server (MMS) notification message being sent to receiver by transmitter.In general, MMS server storage notification message is transmitted to receiver with it then.Get nowhere if transmit, it will send the notification message of being stored again later.

Stream transmission be preferably in first and the phase III in carry out, promptly when the upload media content arrives medium (stream transmission) server and from medium (stream transmission) server during media content download.It should be noted that the stream transmission of uploading the stage in (stage 1) is not the principal character of the inventive method.Yet, in stage 1 and 3, utilize stream transmission can reduce from transmitter beginning transfers media content and in receiver, begin to transmit as a stream between delay.It also has the effect that can reduce the required memory capacity of medium (stream transmission) server, and can realize in MMS in real time effectively or approaching real-time stream transmission.

The stage 2 of this method can be considered the message control stage, and it relates to by MMS server Multimedia Message is transmitted to receiver (the target receiver of Multimedia Message) with the information relevant with stream transmission.Stage 1 and 2 can sequentially or substantially side by side carry out, and the stage 3 can automatically carry out when receiver receives notification message, or later carries out according to receiver user's wish again.Therefore, the invention provides the flexibility that receiver can be play the streaming video content at any time.Preferred embodiment not the size of media content or when multichannel transmits the quantitative aspects of receiver limited.Preferred embodiment is based on storage-retransmission method, so it meets other MMS method.This media content that just makes any not energy fluidizing or type be unsuitable for transmitting as a stream can be downloaded in the receiver by the traditional approach as appointment in the current MMS standard.

The enforcement that an advantage of the invention is the stream transmission function can strengthen the MMS advised in many side, and is especially very big or carrying out multichannel when transmitting at media content Since the storage-retransmission method of in MMS, transmitting as a stream make receiver can determine fully neatly whether and when to receive with play multimedia message in media content, therefore this method is effectively and desirable.The present invention also provides the stream transmission function in the framework of the MMS that is advised, so it is compatible fully with existing MMS standard.

Hereinafter the embodiments of the invention of Miao Shuing will be summarized in the key step of transmitting as a stream among the MMS.

Fig. 2 is the figure of communication system 20 according to the preferred embodiment of the invention.System 20 comprises transmitter 21, has the MMS center (MMSC) of media server 22 and MMS server 23, and receiver 24.MMSC also can be regarded as the communication server.

In the example of this Multimedia Message stream storage means, transmitter 21 is a portable terminal, and video camera 25 and the microphone (not shown) that can generate the media content (audio/video clips) that will send receiver 24 to are housed.Receiver 24 is a portable terminal, but the equipment of appropriate display software and display media content (audio/video clips) is housed.Usually, transmitter 21 is similar equipment with receiver 24, why one of them another is a receiver 24 for transmitter 21, for no other reason than that their role is transmit leg and recipient's (transmitter and receiver) The three phases of the inventive method will be described in detail below.

In the stage 1, set up the stream transmission dialogue between transmitter 21 and medium (stream transmission) server 22,22 beginnings of medium (stream transmission) server are at the precalculated position storing media content.This stage can be considered medium and uploads the stage.

In the stage 2, transmitter 21 sends by MMS server 23 and is notified to receiver 24, the relevent stored media content of notice Notice is included in and sets up the required demonstration descriptor of another stream transmission dialogue between receiver 24 and the media server 22.Show that descriptor includes but not limited to following data: the network address of media server, The particular content of access mechanism can regain media content by access mechanism from media server 22; The medium type that to transmit as a stream; Be used for the coding method that media content is encoded and be used for the indication of the host-host protocol of downloads of media.

In the stage 3, receiver 24 is set up the stream transmission dialogue with media server 22 based on the information in the notification message that is received, and receiver 24 begins to download and playing media.This stage can be considered the medium download phase.Media content is downloaded according to the order of content subdivision, a time period of each subdivision representative stream transmission dialogue.The content subdivision can be divided into data packets, and perhaps a subdivision can comprise more than a data packets, and this depends on the size of the payment load of the type of coding of media content and data packets.

Media server 22 and MMS server 23 may be incorporated in together, perhaps remain different entities in network, depend on their the selected implementation of service provider of control.Media server 22 for example can be arranged in mobile communications network or be arranged in the internet, and providing that the control of service provider serves in the not responsible mobile communications network down can be provided.

When all transmitting as a stream in stage 1 and stage 3, (notice) stage 2 carried out during (medium are uploaded) stage 1, and (medium download) stage 3 also can begin during the stage 1.Transmitter 21 continues media content is sent to media server 22, and media server 22 sends to receiver 24 with the part of receiving previously in the media content simultaneously.Receiver begins (and continuation) playing media content, and the time of stream transmission process, data transfer delay and stage 3 beginnings is depended in its total delay.If the stage 3 is not automatically to begin but in prompting with when receiving user's the permission of receiver 24, so total delay just gets started the delay in stage 3 usually when receiving notice at receiver 24.

In another embodiment, media content has been stored in the media server 22, and transmitter 21 is known the demonstration descriptor of media content.Can omit the stage 1 in this case.As mentioned above, the stream transmission of media content is unimportant concerning the stage 1.For example, the non-stream transmission method in stage 1 can be used in combination with the media content that commercial content provides device to provide, and commercial content provides device for example to provide device for the news content that is arranged in communication network such as internet.Content provides device to utilize non-stream to be transmitted in sending in the IP connection and updates stored in media content in the media server 22, and the potential receiver of notification message notice media content that utilizes the stage 2 according to the present invention is about the message of interested new montage.The recipient of notification message such as user can provide device to subscribe to specific content.On the basis of notification message, in each time easily, whether each recipient's decision forms the stream transmission dialogue with media server 22, so that the new media content that provides device to be provided by certain content to be provided.This has also represented a kind of example of multiple channel sending method, and it utilizes multi-media messaging system according to the present invention to transmit as a stream.

According to another embodiment of the present invention, show that descriptor can be stored in the server except that MMS server 23 or media server 22, as Email or Web server.In this embodiment, the particular server that shows descriptor has been stored in the notification message identification that sends to receiver 24, and with access mechanism (HTTP GET, WSP GET, IMAP4, POP3, RSTP DESCRIBE) regain the demonstration descriptor from that position.Then, server 24 utilizes the access mechanism of appointment to regain the demonstration descriptor from the server that notification message is discerned.Then, the demonstration descriptor Boot Server 24 of gained calls the stage 3 of the method, to regain and to play the media content of being stored.If being used to store the server that shows descriptor is MMS server 23, current MMS method can be used for directly regaining the demonstration descriptor.In this case, 23 MMS notice is carried the demonstration descriptor from transmitter 21 to MMS server, shows that descriptor is stored in the MMS server 23.Then, show that from having stored the server described has carried position. server address and other required information that the demonstration of being stored is described to the notice of receiver 24.At last, receiver 24 is followed MMS and regain the demonstration description from MMS server 23.

Therefore it should be noted, in some cases, transmitter 21 send to MMS server 23 notification message the information content can to send to the information content of receiver 24 different with MMS server 23.

According to a preferred embodiment of the invention, if transmitter 21 and receiver 24 are under the management of different interconnective MMS servers (being that they have different " service " multimedia servers), notification message can transmit in the connection between MMS server.For any end-to-end notice, the quantity of the server that can link together between the service MMS server is unrestricted.

In internet domain, exist the existing protocol that is used to transmit as a stream control and media delivery.Therefore the stage 1 and 3 can carry out based on these existing protocols.In this mode, can guarantee also and the interworking of internet that by method provided by the invention this also is a free-revving engine of current MMS standard.Therefore stage 2 meets existing MMS standard, can provide the back compatible between the mechanism with previous suggestion, with the media content of download non-stream.

To be used to finish some practical approaches of the different phase of the preferred embodiment of the present invention by example explanation below.

Real-time streaming host-host protocol (RTSP) is a client-server stream transmission control protocol, can realize the controllable transmission of streamed multimedia data on IP network It is the agreement of an application layer, can use with transmission control protocol (TCP) or user datagram protocol (UDP) RTSP provides use RTP

(RTP)/UDP or any other low level protocol scope to be used for media delivery.RTSP comprises the method/instruction of a cover control streaming audio and/or video.In this regard useful method/instruction is OPTIONS, DESCRIBE, ANNOUNCE, SETUP, PLAY, PAUSE, TEARDOWN, REDIRECT and RECORD Medium are uploaded and are downloaded and can utilize SETUP, PLAY, and RECORD, PAUSE and TEARDOWN carry out.

HTTP(Hypertext Transport Protocol) also can be used for by TCP is realized and control uploading and downloading of media content of the present invention as host-host protocol.HTTP has method/instruction PUT and the GET corresponding to RECORD among the RTSP and PLAY, can be used for the uploading of medium (stage 1) and downloads (stage 3).

UDP is the host-host protocol of connectionless lightweight, and the communication of shorter stand-by period can be provided.RTP specially designs for real time communication, carries out RTP and makes it that the time mark and the serial number of the data packets that is positioned at the UDP upper strata can be provided.Multichannel transmits and can utilize RTP to carry out.RTP also is designed for assist control agreement RTCP (real time control protocol) and is used in combination, with the quality that obtains relevant data transmission and the feedback of the participant information in the ongoing dialogue.RTP and RTCP can be provided for carrying required function of real time content and controlling mechanism together, therefore can realize the stream transmission of media content, thereby can be used in combination with the present invention.

TCP is connection-oriented host-host protocol.Compare with UDP, it with increase the stand-by period and more multitube reason expense be cost guarantee data packets accurately and reception in proper order.In TCP, can not use multichannel to transmit, if but buffer time at initial stage is inessential and it is shorter relatively to carry out the media clip of streamingization, and TCP can be used for stream transmission and use.

Upper strata in stream transmission control and media transport layer need have the message controlled function, so that stream transmission is incorporated among the MMS.Fig. 3 has represented the master agreement layer according to the stream data transmission system of Fig. 2.Give information comprehensive control of sending function of message key-course 31.For example in transmitter 21, message key-course 31 is responsible for media content is assembled in the Multimedia Message, and forms the notification of information message that includes the description media content, and notification message is sent to required receiver 24 then again.In receiver 24, message key-course 31 is explained received notification message, extracts the information relevant with the position of the media content of will transmit as a stream and forms stream transmission dialogue information necessary, to regain media content.Message key-course 31 also is responsible for the transmission and the reception of any media content that can not transmit as a stream and/or be unsuitable for transmitting as a stream according to existing MMS of control.

Stream transmission layer 32 is by 31 controls of message key-course.It the rule that the information that provides according to message key-course 31 or each medium type be scheduled to is provided is come the various media contents that will transmit as a stream are formed the stream transmission dialogue.It also is responsible in case set up the just stream transmission of control/adjusting media content of stream transmission dialogue.In transmitter 21, stream transmission layer 32 is responsible for the media content streaming is uploaded in the media server 22, and on the contrary, in receiver 24, it is responsible for control from media server 22 streaming media content downloads.Perhaps, can provide the stream transmission controlled function under these circumstances in media server 22, promptly transmit as a stream in stage 1 and 3, making can provide between transmitter 21 and receiver 24 in real time or near the stream transmission of real-time media content.Media transport layer 33 utilizes suitable host-host protocol to come the actual transmissions of deal with data.Can select for different media types pre-determines agreement., be prompted to media transport layer 33 by message key-course and stream transmission key-course 31,32 perhaps according to the information in the notification message.In a preferred embodiment, the data transmission channel notified according to media transport layer 33 of media streaming control adapts to stream transmission.

Fig. 4 has represented according to a preferred embodiment of the invention, the structure of the different control messages that send between receiver 24 and the MMSC (or media server 22) during the streaming video content is downloaded.It has shown when utilizing RTP/RTCP as host-host protocol, utilizes the information flow of RTSP dialogue playing media montage in receiver 24.This has just provided an example of the method that is used in downloads of media montage in the stage 3 of the present invention.Below explanation is sent to the control messages of receiver 24.

Receiver 24 requires to obtain its notified media content in the stage 2.The RTSP that receiver 24 will be used to set up stream transmission sets up information (41) and sends to MMSC, and receives corresponding confirm (41ACK).Receiver 24 sends to MMSC with RTSP play instruction message (42) then, and receives corresponding affirmation (42 ACK).MMSC responds this play instruction, begins RTP audio frequency (43) and RTP video (44) content are sent to receiver 24 according to the Multimedia Message that is sent.Receiver 24 can send media content by RTCP message (45) control MMSC.In case the user of receiver 24 wishes the stream transmission that suspends content and download that he or she can ask to suspend stream transmission, in response, receiver sends to MMSC with RTSP suspending message (46), and (46 ACK) confirmed in reception accordingly.Respond this RTSP suspending message, MMSC suspends transmission media content (RTP audio frequency and RTP video).Then, receiver 24 is dismantled message (teardown message) (47) with RTSP and is sent to MMSC and stop RTP dialogue, allows to proceed later on stream transmission again.MMSC sends it back receiver 24 with corresponding acknowledge message (47 ACK).

By replace the PLAY instruction with RECORD, can realize to the stage 1 of the present invention in medium upload similar dialogue, wherein on the position of receiver 24, should be transmitter 21.

The message controlled function requires to carry out end-to-end notice, and this is that receiver 24 requires the certain information relevant with media content carry out streamingization because as discussed previously, so that join in the stream transmission dialogue.According to current MMS standard, information and the media content itself of describing media content are packaged together, and therefore can't send to receiver 24 independently.When not having this information, receiver 24 can't come media content download by stream transmission.By the end to end communication that separates of medium display message is provided, the method according to this invention can the information that it is required offer receiver 24, so that come media content download by stream transmission.In addition, the scope of existing non-stream transmission MMS (Microsoft Media Server) Protocol can allow to utilize end-to-end message to carry out the communication of medium display message via MMS server, makes the method according to this invention and current MMS operating such.

RTSP is considered to be in the optimal mode of realizing and control stream transmission in stage 1 and 3 if as media transmission protocol, on performance, need to carry out to a certain degree compromise with RTP/UDP or TCP.Particularly, because TCP is a Connection-oriented Protocol, the words of utilizing TCP to finish can not provide the multichannel transmitting function.Yet TCP is representing the another kind of feasible media transmission protocol that can be used in combination with the present invention.In fact, its connection-oriented characteristic has advantage in some cases, especially when the safer stream transmission of needs.According to a preferred embodiment of the invention, existing MMS (Microsoft Media Server) Protocol is used for will showing that via MMSC the end-to-end notice of descriptor offers receiver 24 from transmitter 21 in the stage 2.

Fig. 5 has represented to be incorporated into the block diagram of the portable terminal 50 (can be transmitter 21 or receiver 24) of cellular radio.Portable terminal 50 comprises display screen 51, be used to the transceiver 52 that transmits and receive radio signals, be used to handle the processor (DSP) 53 of mutual conversion of the digital signal of radio signal and data and sound, user input apparatus such as keypad or keyboard 54 are by the CPU 55 of software control operation.Portable terminal 50 also comprises the memory 56 that is used to store data and software.Memory can use for DSP53 and CPU55.Software comprises the operation of operating system and may command portable terminal 50 and the application software of certain function is provided, as MMS.Portable terminal 50 also comprises dismountable smart card, for example is used for the SIM card 57 of User Recognition.The part that memory 56 is specifically designed to the storage application software is so-called

permanent memory, even its energy supply at portable terminal 50 also can be preserved content when exhausting.Application software can be any the known systems storage, comprise that factory installs, access and by wireless downloading from personal computer is for example from the server of communication network.These all technology all can be learnt from Nokia 9110 communicators.

Fig. 6 has represented to be used for according to an embodiment of the invention the wireless adapter card 61 of Desktop PC 62, and it can be used as transmitter 21 or receiver 24.Wireless adapter card is installed in the PCMCIA groove of Desktop PC 62 (PCMCIA, personal computer memory card League of Nations)

Comprise application in the communication network that radio communication connects though described hereinbefore the present invention is it at subnetwork at least, what should emphasize is that its application never is limited to this network.The physical connection that the present invention also can be equally applicable between each device in the network (transmitter 21, the receiver 24 and the webserver) is partly or entirely to connect in the network of realizing by fixed line

The operation of the server of different embodiment involved in the present invention and terminal such as MMSC, transmitter 21 and receiver 24 is best by computer program control, and it can make these entities operate according to requirement of the present invention.

Above by the agency of special implementation of the present invention and embodiment.For a person skilled in the art, clearly the present invention is not limited to the details of the foregoing description, can carry out in utilizing other embodiment of equivalent device under the prerequisite that does not break away from feature of the present invention.Scope of the present invention is only by appended Patent right requirement restriction.

Patent Citations (200)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
US5396636A	1990-06-01	1995-03-07	Vadem Corporation	Power conservation apparatus having multiple power reduction levels dependent upon the activity of the computer system
DE4124227A1	1991-07-22	1993-01-28	Datawatt Bv	METHOD FOR EXCHANGING DATA
US7113780B2	1992-03-06	2006-09-26	Aircell, Inc.	System for integrating an airborne wireless cellular network with terrestrial wireless cellular networks and the public switched telephone network
US5224648A *	1992-03-27	1993-07-06	American Standard Inc.	Two-way wireless HVAC system and thermostat
US5325423A	1992-11-13	1994-06-28	Multimedia Systems Corporation	Interactive multimedia communication system
BR9307440A	1992-11-16	1999-06-01	Multimedia Systems Corp	Interactive multimedia entertainment system and device
SE500830C2 *	1993-05-17	1994-09-12	Ericsson Telefon Ab L M	Method and apparatus for channel utilization in a radio communication system
DE4329010A1 *	1993-08-28	1995-03-02	Sel Alcatel Ag	Radio system
US5745782A *	1993-09-28	1998-04-28	Regents Of The University Of Michigan	Method and system for organizing and presenting audio/visual information
US5689641A *	1993-10-01	1997-11-18	Vicor, Inc.	Multimedia collaboration system arrangement for routing compressed AV signal through a participant site without decompressing the AV signal
US5513126A *	1993-10-04	1996-04-30	Xerox Corporation	Network having selectively accessible recipient prioritized communication channel profiles
US5887724A *	1993-10-12	1996-09-17	Intel Corporation	User interface, method, and apparatus selecting and playing channels having video, audio, and/or text streams
EP0728339A4 *	1993-10-29	1997-05-14	Ronald D Kerbley	Interactive multimedia communications system which accesses industry-specific information
US5717955A *	1993-12-03	1998-02-10	Xerox Corporation	System for changing device from specialized interface that enables control of subsystem to general interface that performs general purpose computing functions unrelated to the subsystem
US5555376A *	1993-12-03	1996-09-10	Xerox Corporation	Method for granting a user request having locational and contextual attributes consistent with user policies for devices having locational attributes consistent with the user request
CA2136255A1	1994-01-06	1995-07-07	Ewald Christoph Anderl	Integrated electronic mailbox
AU6848794A *	1994-03-10	1994-08-15	Cable And Wireless Plc	Communication system
CA2148153A1 *	1994-05-13	1995-11-14	Abhaya Asthana	Interactive multimedia system
US5642171A *	1994-06-08	1997-06-24	Dell Usa, L.P.	Method and apparatus for synchronizing audio and video data streams in a multimedia system
AU3548995A *	1994-09-08	1996-03-27	Virtex Communications, Inc.	Method and apparatus for electronic distribution of digital multi-media information
JP3384138B2	1994-09-28	2003-03-10	株式会社日立製作所	Mobile terminal
US6029195A *	1994-11-29	2000-02-22	Herz; Frederick S. M.	System for customized electronic identification of desirable objects

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US5854898A *	1995-02-24	1998-12-29	Apple Computer, Inc.	System for automatically adding additional data stream to existing media connection between two end points upon exchange of notifying and confirmation messages therebetween
US6200216B1 *	1995-03-06	2001-03-13	Tyler Peppel	Electronic trading card
US5737011A *	1995-05-03	1998-04-07	Bell Communications Research, Inc.	Infinitely expandable real-time video conferencing system
JP3184763B2	1995-06-07	2001-07-09	インターナショナル・ビジネス・マシーンズ・コーポレーション	Multimedia direct access storage device and format method
FI98175C *	1995-06-12	1997-04-25	Nokia Oy Ab	Transmission of multimedia objects in a digital data transmission system
EP0797342B1	1995-10-11	2012-03-14	Sony Corporation	Information providing device and portable communication terminal
US6724372B1	1995-10-16	2004-04-20	Nec Corporation	Ink trails on a wireless remote interface tablet and wireless remote ink field object
US6301482B1 *	1995-12-11	2001-10-09	Stanford Telecommunications, Inc.	DMA cellular radio system with a channel quality criterion
US20020086671A1 *	1996-02-05	2002-07-04	Umesh J. Amin	Roaming authorization system
US5751704A *	1996-03-01	1998-05-12	Lucent Technologies Inc.	Technique for minimizing the variance of interference in packetized interference-limited wireless communication systems
US5901287A *	1996-04-01	1999-05-04	The Sabre Group Inc.	Information aggregation and synthesization system
FI103458B *	1996-04-23	1999-06-30	Nokia Mobile Phones Ltd	Multimedia terminal and method for conducting multimedia reception
US5778187A *	1996-05-09	1998-07-07	Netcast Communications Corp.	Multicasting method and apparatus
JPH09311831A	1996-05-22	1997-12-02	Nec Corp	Electronic mail system
US6427063B1	1997-05-22	2002-07-30	Finali Corporation	Agent based instruction system and method
JP3258236B2 *	1996-05-28	2002-02-18	株式会社日立製作所	Multimedia information transfer system
US5996022A *	1996-06-03	1999-11-30	Webtv Networks, Inc.	Transcoding data in a proxy computer prior to transmitting the audio data to a client
US6006227A *	1996-06-28	1999-12-21	Yale University	Document stream operating system
US7190681B1	1996-07-10	2007-03-13	Wu William W	Error coding in asynchronous transfer mode, internet and satellites
SE506976C2	1996-07-12	1998-03-09	Europolitan Ab	Allow a subscriber to edit personal settings regarding telecommunications services
JP3333396B2	1996-07-22	2002-10-15	ケイディーディーアイ株式会社	Multimedia mail receiving means
JP3877081B2 *	1996-07-24	2007-02-07	富士通株式会社	Content and additional information management system, and content and additional information display system managed by the system
US6308171B1 *	1996-07-30	2001-10-23	Carlos De La Huerga	Method and system for automated data storage and retrieval
US6366554B1 *	1996-09-02	2002-04-02	Stmicroelectronics N.V.	Multi-carrier transmission systems
US6181714B1 *	1996-09-02	2001-01-30	Telia Ab	Multi-carrier transmission systems
US6330244B1 *	1996-09-05	2001-12-11	Jerome Swartz	System for digital radio communication between a wireless lan and a PBX
TW347498B	1996-09-30	1998-12-11	Casio Computer Co Ltd	Information supply system
SE510664C2	1996-10-29	1999-06-14	Ericsson Telefon Ab L M	Methods and apparatus for message management in a communication system
US7249344B1	1996-10-31	2007-07-24	Citicorp Development Center, Inc.	Delivery of financial services to remote devices
US6016307A *	1996-10-31	2000-01-18	Connect One, Inc.	Multi-protocol telecommunications routing optimization
US6233318B1 *	1996-11-05	2001-05-15	Comverse Network Systems, Inc.	System for accessing multimedia mailboxes and messages over the internet and via telephone
FI113224B *	1996-11-11	2004-03-15	Nokia Corp	Implementation of invoicing in a data communication system
AT233458T	1996-12-09	2003-03-15	Siemens Ag	METHOD AND TELECOMMUNICATION SYSTEM FOR SUPPORTING MULTIMEDIAL SERVICES THROUGH AN INTERFACE AND AN

				APPROPRIATELY EQUIPPED PARTICIPANT DEVICE
US6169789B1	1996-12-16	2001-01-02	Sanjay K. Rao	Intelligent keyboard system
US5848415A *	1996-12-18	1998-12-08	Unisys Corporation	Selective multiple protocol transport and dynamic format conversion in a multi-user network
IL130735A *	1997-01-06	2004-05-12	Bellsouth Corp	Method and system for tracking network use
US6014706A *	1997-01-30	2000-01-11	Microsoft Corporation	Methods and apparatus for implementing control functions in a streamed video display system
US6415439B1 *	1997-02-04	2002-07-02	Microsoft Corporation	Protocol for a wireless control system
JPH10240643A	1997-02-25	1998-09-11	Kobe Nippon Denki Software Kk	Electronic mail system
US6167261A *	1997-02-27	2000-12-26	At&T Wireless Svcs. Inc.	Wireless communication service management
JP3792823B2	1997-02-28	2006-07-05	キヤノン株式会社	Printing apparatus and printing control apparatus
US5918002A *	1997-03-14	1999-06-29	Microsoft Corporation	Selective retransmission for efficient and reliable streaming of multimedia packets in a computer network
US6546005B1	1997-03-25	2003-04-08	At&T Corp.	Active user registry
US6211869B1 *	1997-04-04	2001-04-03	Avid Technology, Inc.	Simultaneous storage and network transmission of multimedia data with video host that requests stored data according to response time from a server
JP2984620B2	1997-05-14	1999-11-29	日本電気フィールドサービス株式会社	Email system with incoming call notification function
US7284187B1 *	1997-05-30	2007-10-16	Aol Llc, A Delaware Limited Liability Company	Encapsulated document and format system
DE69808501T3 *	1997-06-25	2007-05-03	Samsung Electronics Co., Ltd., Suwon	METHOD FOR CREATING MACRO COMMUNICATIONS FOR A HOME NETWORK
FI1074988	1997-06-30	2001-08-15	Nokia Networks Oy	Defining carrier service parameter in a radio access network
US6317795B1 *	1997-07-22	2001-11-13	International Business Machines Corporation	Dynamic modification of multimedia content
JPH1155324A *	1997-07-31	1999-02-26	Fujitsu Ltd	Communication system for computer network
US6105036A *	1997-08-27	2000-08-15	International Business Machines Corporation	Computer system and method of displaying a source code file with an ordered arrangement of object definitions
US6636733B1 *	1997-09-19	2003-10-21	Thompson Trust	Wireless messaging method
JP3274393B2 *	1997-09-22	2002-04-15	株式会社ディジタル・ビジョン・ラボラトリーズ	Network system, data distribution method, and computer-readable recording medium recording distribution data
US6608832B2	1997-09-25	2003-08-19	Telefonaktiebolaget Lm Ericsson	Common access between a mobile communications network and an external network with selectable packet-switched and circuit-switched and circuit-switched services
US6363411B1 *	1998-08-05	2002-03-26	Mci Worldcom, Inc.	Intelligent network
US6839680B1 *	1997-10-06	2002-05-28	Avaya Technology Corp.	Unified messaging system and method providing cached message streams
US6898207B2	1997-10-08	2005-05-24	Bandwidth Technology Corp.	Techniques for communicating information using Hermite-Gaussian basis functions
US6134235A *	1997-10-08	2000-10-17	At&T Corp.	Pots/packet bridge
US6167040A *	1997-10-10	2000-12-26	Nokia Telecommunications Oy	Speech transmission between terminals in different networks
US6052735A *	1997-10-24	2000-04-18	Microsoft Corporation	Electronic mail object synchronization between a desktop computer and mobile device
US6163809A *	1997-12-08	2000-12-19	Microsoft Corporation	System and method for preserving delivery status notification when moving from a native network to a foreign network
US6938268B1 *	1998-01-08	2005-08-30	Winston W. Hodge	Video stream sharing
US6469714B2 *	1998-01-26	2002-10-22	International Business Machines Corporation	Infocenter user interface for applets and components
FI1141328 *	1998-01-28	2004-08-13	Nokia Corp	Supporting the quality of data transmission through wireless data transmission

US6421707B1 *	1998-02-13	2002-07-16	Lucent Technologies Inc.	Wireless multi-media messaging communications method and apparatus
JP3641128B2 *	1998-02-20	2005-04-20	株式会社東芝	MOBILE COMPUTER DEVICE, MOBILE COMPUTER MANAGEMENT DEVICE, MOBILE COMPUTER MANAGEMENT METHOD, AND COMMUNICATION CONTROL METHOD
IL123819A *	1998-03-24	2001-09-13	Geo Interactive Media Group Lt	Network media streaming
US6522683B1 *	1998-03-24	2003-02-18	Vistar Telecommunications Inc.	Packet data communication system with buffered data and control channels
JPH11274993A	1998-03-25	1999-10-08	Nittetsu Hokkaido Seigyo System Kk	Multi-data transmitter-receiver system
US6947943B2	2001-10-26	2005-09-20	Zeosoft Technology Group, Inc.	System for development, management and operation of distributed clients and servers
FI110987B	1998-03-31	2003-04-30	Nokia Corp	Method of connecting data transfer streams
EP1076976B1	1998-04-28	2005-03-09	Nokia Corporation	A method of and a network for handling wireless session protocol (wsp) sessions.
FI105971B	1998-04-30	2000-10-31	Nokia Mobile Phones Ltd	Method and hardware for handling email
US6549612B2	1998-05-06	2003-04-15	Telecommunications Premium Services, Inc.	Unified communication services via e-mail
ES2246568T3 *	1998-05-07	2006-02-16	Samsung Electronics Co., Ltd.	PROCEDURE AND APPARATUS FOR UNIVERSAL ACCESSIBLE COMMAND AND CONTROL INFORMATION ON A NETWORK.
JPH11328063A	1998-05-08	1999-11-30	Canon Inc	Portable radio terminal equipment, electronic mail reading method, and recording medium
IT1299476B1	1998-05-25	2000-03-16	Itel S P A	SYSTEM FOR COMBINED SIGNAL MANAGEMENT
US7209949B2	1998-05-29	2007-04-24	Research In Motion Limited	System and method for synchronizing information between a host system and a mobile data communication device
US7086553B1	1998-06-01	2006-06-20	Microsoft Corporation	Presentation system with distributed object oriented multi-user domain and separate view and model objects
US6430177B1 *	1998-06-09	2002-08-06	Unisys Corporation	Universal messaging system providing integrated voice, data and fax messaging services to pc/web-based clients, including a content manager for receiving information from content providers and formatting the same into multimedia containers for distribution to web-based clients
FI108982B *	1998-06-15	2002-04-30	Nokia Corp	Message service in a wireless communication system
AUPP4110998A0 *	1998-06-15	1998-07-09	Newcom Technologies Pty Ltd	Communication method and apparatus improvements
US6594238B1	1998-06-19	2003-07-15	Telefonaktiebolaget Lm Ericsson (Publ)	Method and apparatus for dynamically adapting a connection state in a mobile communications system
FI981724A	1998-07-15	2000-01-16	Nokia Networks Oy	Selection of the execution method for a service
US6341288B1 *	1998-07-29	2002-01-22	Sybase, Inc.	Database system with methodology for accessing a database from portable devices
GB9817292D0	1998-08-07	1998-10-07	Nokia Mobile Phones Ltd	Digital video coding
US6697869B1 *	1998-08-24	2004-02-24	Koninklijke Philips Electronics N.V.	Emulation of streaming over the internet in a broadcast application
EP0984584A1 *	1998-09-04	2000-03-08	America Online, Inc.	Internet multimedia broadcast system
AU6385699A	1998-09-11	2000-04-03	Sharewave, Inc.	Method and apparatus for controlling communication within a computer network
FI108200B *	1998-09-14	2001-11-30	Nokia Mobile Phones Ltd	Switching the connection between mobile networks
AU6926099A	1998-09-15	2000-04-03	Microsoft Corporation	Annotation creation and notification via electronic mail
JP3579263B2 *	1998-09-30	2004-10-20	株式会社東芝	Program data selection method and program viewing system
JP3517930B2	1998-09-30	2005-02-09	株式会社東芝	Wireless portable terminal device, gateway device, and communication processing control method
KR100563592B1	1998-10-01	2006-09-22	엘지전자 주식회사	method for branching data in the 3rd generation mobile communication system
US6469998B1 *	1998-10-06	2002-10-22	Telefonaktiebolaget Lm Ericsson (Publ)	Method and apparatus for communicating data packets from an external packet network to a mobile radio station

US6658485B1 *	1998-10-19	2003-12-02	International Business Machines Corporation	Dynamic priority-based scheduling in a message queuing system
US6134313A *	1998-10-23	2000-10-17	Toshiba America Information Systems, Inc.	Software architecture for a computer telephony system
US6314094B1 *	1998-10-29	2001-11-06	Central Coast Patent Agency Inc	Mobile wireless internet portable radio
US6741967B1	1998-11-02	2004-05-25	Vividence Corporation	Full service research bureau and test center method and apparatus
US6249844B1 *	1998-11-13	2001-06-19	International Business Machines Corporation	Identifying, processing and caching object fragments in a web environment
US6522875B1	1998-11-17	2003-02-18	Eric Morgan Dowling	Geographical web browser, methods, apparatus and systems
US6557026B1	1998-11-23	2003-04-29	Moonlight Cordless Ltd.	Method for enhancing video compression through automatic data analysis and profile selection
US6269483B1 *	1998-12-17	2001-07-31	International Business Machines Corp.	Method and apparatus for using audio level to make a multimedia conference dormant
US6792273B1	1998-12-18	2004-09-14	Telefonaktiebolaget Lm Ericsson (Publ)	Method and apparatus for resource reservation in a mobile radio communication system
US6317584B1 *	1998-12-21	2001-11-13	Nortel Networks Limited	Controlling communication in wireless and satellite networks
US20020073218A1 *	1998-12-23	2002-06-13	Bill J. Aspromonte	Stream device management system for multimedia clients in a broadcast network architecture
US6236909B1 *	1998-12-28	2001-05-22	International Business Machines Corporation	Method for representing automotive device functionality and software services to applications using JavaBeans
US6744761B1 *	1998-12-28	2004-06-01	Nortel Networks Limited	Workflow manager
US6665254B1	1998-12-31	2003-12-02	At&T Corp.	Method and apparatus for personalization of a public multimedia communications terminal
US6539118B1	1998-12-31	2003-03-25	International Business Machines Corporation	System and method for evaluating character sets of a message containing a plurality of character sets
US6584146B2	1999-01-13	2003-06-24	Vanu, Inc.	Systems and methods for wireless communications
GB9900970D0	1999-01-15	1999-03-10	British Telecomm	Communications network
US6725038B1	1999-01-26	2004-04-20	Nokia Corporation	Method and apparatus for speeding up AAL2 connection setup during handover in advanced cellular networks
JP2000222302A	1999-02-02	2000-08-11	Hitachi Ltd	Electronic mail incoming communication system
JP2000232530A	1999-02-10	2000-08-22	Sharp Corp	Method for transferring electronic mail to portable terminal, electronic mail center system and portable terminal
US6498865B1 *	1999-02-11	2002-12-24	Packetvideo Corp,	Method and device for control and compatible delivery of digitally compressed visual data in a heterogeneous communication network
US6377996B1 *	1999-02-18	2002-04-23	International Business Machines Corporation	System for seamless streaming of data stored on a network of distributed primary and target servers using segmentation information exchanged among all servers during streaming
US6677858B1	1999-02-26	2004-01-13	Reveo, Inc.	Internet-based method of and system for monitoring space-time coordinate information and biophysiological state information collected from an animate object along a course through the space-time continuum
US6199099B1 *	1999-03-05	2001-03-06	Ac Properties B.V.	System, method and article of manufacture for a mobile communication network utilizing a distributed communication network
FI107425B *	1999-03-16	2001-07-31	Nokia Mobile Phones Ltd	Method and arrangement for transporting multimedia-related information in a cellular radio network
US6446130B1 *	1999-03-16	2002-09-03	Interactive Digital Systems	Multimedia delivery system
US6647535B1	1999-03-18	2003-11-11	Xerox Corporation	Methods and systems for real-time storyboarding with a web page and graphical user interface for automatic video parsing and browsing
US6260050B1 *	1999-03-23	2001-07-10	Microstrategy, Inc.	System and method of adapting automatic output of service related OLAP reports to disparate output devices
FI107306B	1999-04-13	2001-06-29	Nokia Mobile Phones Ltd	Procedure in a wireless data transfer system as well as a wireless data transfer system
US6526580B2	1999-04-16	2003-02-25	Digeo, Inc.	Broadband data broadcasting service
EP1169827B1	1999-04-19	2005-08-17	Nokia Corporation	Method for delivering messages

US6314457B1 *	1999-04-21	2001-11-06	Airclic, Inc.	Method for managing printed medium activated revenue sharing domain name system schemas
US6633906B1	1999-04-26	2003-10-14	International Business Machines Corporation	Method and system for managing windows desktops in a heterogeneous server environment
US7152092B2	1999-05-05	2006-12-19	Indeliq, Inc.	Creating chat rooms with multiple roles for multiple participants
US6538623B1	1999-05-13	2003-03-25	Pirooz Parnian	Multi-media data collection tool kit having an electronic multi-media "case" file and method of use
US7062765B1	1999-05-25	2006-06-13	Realnetworks, Inc.	System and method for updating information via a network
WO2000075682A1	1999-06-08	2000-12-14	Sony International (Europe) Gmbh	Geolocation of mobile devices
US6826637B1 *	1999-06-10	2001-07-17	Cacheflow, Inc.	Method and apparatus for seaming of streaming content
US6636888B1 *	1999-06-15	2003-10-21	Microsoft Corporation	Scheduling presentation broadcasts in an integrated network environment
JP2001005751A	1999-06-18	2001-01-12	Toshinao Komuro	Electronic mail system
SE9902452L	1999-06-28	2000-11-06	Ericsson Telefon Ab L M	Method and device in a telecommunication system
US6850614B1	1999-07-16	2005-02-01	Aspect Communication Corporation	Method for providing consolidated specification and handling of multimedia call prompts
AU6515400A	1999-08-03	2001-02-19	Videoshare, Inc.	Method and system for sharing video over a network
US6763388B1	1999-08-10	2004-07-13	Akamai Technologies, Inc.	Method and apparatus for selecting and viewing portions of web pages
US6356529B1 *	1999-08-12	2002-03-12	Converse, Ltd.	System and method for rapid wireless application protocol translation
US6636256B1	1999-08-20	2003-10-21	Verizon Corporate Services Group Inc.	Video communication system
EP1219122B1	1999-08-23	2008-08-13	Motorola, Inc.	Domain selecting system and method
US6760324B1	1999-09-10	2004-07-06	Array Telecom Corporation	Method, system, and computer program product for providing voice over the internet communication
US6553412B1	1999-09-10	2003-04-22	Avantgo, Inc.	System, method, and computer program product for web content aggregation and development, and web content delivery to clients
US6771964B1	1999-09-24	2004-08-03	Nokia Networks	Handover between wireless telecommunication networks/systems
US6600917B1	1999-10-04	2003-07-29	Telefonaktiebolaget Lm Ericsson (Publ)	Telecommunications network broadcasting of service capabilities
US6795711B1 *	1999-10-07	2004-09-21	Nokia Mobile Phones Ltd	Multimedia message content adaptation
US6625274B1 *	1999-10-12	2003-09-23	Broadsoft, Inc.	Computer system and method for providing services to users of communication systems using service entities, interface entities, and a service bus
US6768373B2	1999-10-13	2004-07-13	Datahouse Labs, Inc.	Method and system for creating and sending handwritten or handdrawn messages
US6792575B1 *	1999-10-21	2004-09-14	Equilibrium Technologies	Automated processing and delivery of media to web servers
US7028264B2	1999-10-29	2006-04-11	Surfcast, Inc.	System and method for simultaneous display of multiple information sources
EP1107512A1 *	1999-12-03	2001-06-13	Sony International (Europe) GmbH	Communication device and software for operating multimedia applications
US20020049852A1 *	1999-12-06	2002-04-25	Yen-Jen Lee	Global messaging with distributed adaptive streaming control
US7069573B1 *	1999-12-09	2006-06-27	Vidiator Enterprises Inc.	Personal broadcasting and viewing method of audio and video data using a wide area network
US7047305B1 *	1999-12-09	2006-05-16	Vidiator Enterprises Inc.	Personal broadcasting system for audio and video data using a wide area network
AU1953301A *	1999-12-10	2001-06-18	Diva Systems Corporation	Method and apparatus for storing content within a video on demand environment
US6697820B1	2000-01-14	2004-02-24	Martin B. Tarlie	System for and method of golf performance recordation and analysis
FI113231B *	2000-01-17	2004-03-15	Nokia Corp	A method for presenting information contained in messages in a multimedia terminal, a multimedia messaging system, and a multimedia terminal

US20020111907A1 *	2000-01-26	2002-08-15	Ling Marvin T.	Systems and methods for conducting electronic commerce transactions requiring micropayment
US6772212B1	2000-03-08	2004-08-03	Phatnoise, Inc.	Audio/Visual server
US6784899B1	2000-03-31	2004-08-31	Ricoh Company, Ltd.	Systems and methods for providing rich multimedia messages to remote users using telephones and facsimile machines
AU2001251353A1 *	2000-04-08	2001-10-23	Sun Microsystems, Inc.	Streaming a single media track to multiple clients
US6731940B1	2000-04-28	2004-05-04	Trafficmaster Usa, Inc	Methods of using wireless geolocation to customize content and delivery of information to wireless communication devices
US20020016818A1 *	2000-05-11	2002-02-07	Shekhar Kirani	System and methodology for optimizing delivery of email attachments for disparate devices
US6968366B1 *	2000-05-12	2005-11-22	International Business Machines Corporation	System and method for management, creation, storage, search and delivery of rich media optimized for e-commerce in a distributed information network
JP3967871B2	2000-07-18	2007-08-29	株式会社日立製作所	An image information creation device, an image communication terminal, an image distribution server, and an image information providing system.
FI112307B	2000-08-02	2003-11-14	Nokia Corp	communication Server
US6633772B2 *	2000-08-18	2003-10-14	Cygnus, Inc.	Formulation and manipulation of databases of analyte and associated values
US20020054090A1 *	2000-09-01	2002-05-09	Silva Juliana Freire	Method and apparatus for creating and providing personalized access to web content and services from terminals having diverse capabilities
US7000187B2	2000-09-30	2006-02-14	Microsoft Corporation	System and method for using dynamic web components to remotely control the security state of web pages
US6976082B1	2000-11-03	2005-12-13	At&T Corp.	System and method for receiving multi-media messages
US6654460B2	2000-11-30	2003-11-25	Pitney Bowes Inc.	Method and system for remote retrieval of messages using spontaneous networking technology
US20020120939A1 *	2000-12-18	2002-08-29	Jerry Wall	Webcasting system and method
US6947738B2 *	2001-01-16	2005-09-20	Telefonaktiebolaget Lm Ericsson (Publ)	Multimedia messaging service routing system and method
FI115744B	2001-02-08	2005-06-30	Nokia Corp	communication Service
US6714778B2	2001-05-15	2004-03-30	Nokia Corporation	Context sensitive web services
WO2005050625A2	2003-11-14	2005-06-02	Senvid, Inc.	Managed peer-to-peer applications in a secure network
US7881233B2	2004-09-01	2011-02-01	Cisco Technology, Inc.	Techniques for planning a conference using location data

* Cited by examiner, † Cited by third party

Cited By (75)

Publication number	Priority date	Publication date	Assignee	Title
CN1309267C *	2004-02-05	2007-04-04	宏碁股份有限公司	Information transfer system
CN100378692C *	2003-04-07	2008-04-02	Sk参力康姆株式会社	Method and system of creating and transmitting multimedia content
CN101217687B *	2007-01-04	2010-12-08	中国移动通信集团公司	Mms message state information processing method
CN1960516B *	2005-11-02	2011-05-18	Lg电子株式会社	Duplicate notification message processing method in terminal
CN101115260B *	2006-07-26	2012-09-05	Lg电子株式会社	Mobile communication terminal and method for playing message in real time thereof
CN102742244A *	2009-12-04	2012-10-17	高通股份有限公司	Mobile media server
CN102860021A *	2010-04-20	2013-01-02	三星电子株式会社	Interface apparatus and method for transmitting and receiving media data
CN103649937A *	2011-05-09	2014-03-19	韦斯技术有限公司	Method and apparatus for dynamically generating media sequences on demand for HTTP live streaming
US8825772B2	2007-06-28	2014-09-02	Voxer Ip Llc	System and method for operating a server for real-time communication of time-based media
US8832299B2	2009-01-30	2014-09-09	Voxer Ip Llc	Using the addressing, protocols and the infrastructure of email to

				support real-time communication
US8849927B2	2009-01-30	2014-09-30	Voxer Ip Llc	Method for implementing real-time voice messaging on a server node
CN102292944B *	2009-01-30	2014-12-10	沃克斯知识产权有限责任公司	Method and device for near real-time communication
US9178916B2	2007-06-28	2015-11-03	Voxer Ip Llc	Real-time messaging method and apparatus
CN105144673A *	2012-12-28	2015-12-09	格莱德通讯有限公司	Reduced latency server-mediated audio-video communication
US9608947B2	2007-06-28	2017-03-28	Voxer Ip Llc	Telecommunication and multimedia management method and apparatus
US10375139B2	2007-06-28	2019-08-06	Voxer Ip Llc	Method for downloading and using a communication application through a web browser
US11095583B2	2007-06-28	2021-08-17	Voxer Ip Llc	Real-time messaging method and apparatus
Family To Family Citations				
FI112307B	2000-08-02	2003-11-14	Nokia Corp	communication Server
FI115744B	2001-02-08	2005-06-30	Nokia Corp	communication Service
US7631037B2	2001-02-08	2009-12-08	Nokia Corporation	Data transmission
GB2397723A *	2002-11-14	2004-07-28	Nokia Corp	Data transmission
WO2002082837A1 *	2001-04-06	2002-10-17	Heilodies A/S	Message distribution system
WO2002084261A1	2002-04-03	2002-10-09	Nokia Corporation	Enabling a content provider initiated content delivery via a specific radio access network
WO2003094534A2 *	2002-05-06	2003-11-13	Telefonaktiebolaget Lm Ericsson (Publ)	Multi-user multimedia messaging services
US20030210683A1 *	2002-05-07	2003-11-13	Koninklijke Kpn N.V.	Telecommunication system
FI20020932A0 *	2002-05-17	2002-05-17	Tero Jartti	Dissemination of image messages in a mobile communication system
US20030227916A1 *	2002-06-06	2003-12-11	Toni Paila	System and method for the multicast distribution of multimedia messaging service messages
DE10225425A1 *	2002-06-07	2003-12-18	Siemens Ag	Mobile phone network data transfer method, especially for transfer of multimedia messages, whereby message data is subject to data type and format conversion according to the receiver profile
US8117328B2 *	2002-06-25	2012-02-14	Microsoft Corporation	System and method for automatically recovering from failed network connections in streaming media scenarios
US7447801B2 *	2002-11-18	2008-11-04	Microsoft Corporation	Composable data streams for managing flows
CN1509104A *	2002-12-17	2004-06-30	◆%◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆ ◆..	Multi-media information service method and system
KR100517988B1	2003-04-16	2005-09-30	엘지전자 주식회사	Method for receiving sms of gsm
SE526415C2 *	2003-07-10	2005-09-13	Telia Ab	Method and system for uneven distribution of data
SE0302040L *	2003-07-10	2005-01-11	Telia Ab	System and method for storing services
FR2859851A1 *	2003-09-11	2005-03-18	France Telecom	Multimedia file accessing system for digital cellular radiotelephone network e.g. GPRS/GSM type network, has notifying server sending file storing notification to mobile terminal identified by address of another mobile terminal
US20050068975A1 *	2003-09-30	2005-03-31	Pierre Colin	Computer data transport system and method
JP3865139B2 *	2003-10-15	2007-01-10	オンキヨー株式会社	Network AV system
FR2862179B1 *	2003-11-10	2006-02-03	Cit Alcatel	METHOD AND SYSTEM FOR TRANSMITTING / RECEIVING MULTIMEDIA CONTENT VIA A RADIO COMMUNICATION NETWORK
CN1882940A *	2003-11-13	2006-12-20	皇家飞利浦电子股份有限公司	Content based partial download
JP4561084B2 *	2003-11-25	2010-10-13	ソニー株式会社	Service management apparatus, service management method, service providing system, and service providing method
JP4459644B2 *	2004-02-06	2010-04-28	株式会社エヌ・ティ・ティ・ドコモ	Data receiving apparatus and data receiving method
US9161068B2	2004-03-24	2015-10-13	Onstream Media Corporation	Remotely accessed virtual recording room

FI117313B *	2004-04-05	2006-08-31	Nokia Corp	Message handling method in telecommunication system, involves obtaining capability data relating to client terminal and checking whether obtained data comprises upper-level application that is supported by client terminal
US20050221813A1 *	2004-04-05	2005-10-06	Jarno Rajahalme	System and method for initiating auxiliary communication interfaces via a primary communication interface
US20060031369A1 *	2004-07-01	2006-02-09	Marc Caron	Method, system, and edge multimedia messaging service (MMS) relay/server for multi-staged MMS
CN1722709A *	2004-07-15	2006-01-18	皇家飞利浦电子股份有限公司	Method and system for transmitting multimedia message from transmitter via a terminal to another terminal
US9647952B2	2004-08-06	2017-05-09	LiveQoS Inc.	Network quality as a service
US8009696B2	2004-08-06	2011-08-30	Ipeak Networks Incorporated	System and method for achieving accelerated throughput
US9189307B2	2004-08-06	2015-11-17	LiveQoS Inc.	Method of improving the performance of an access network for coupling user devices to an application server
US7953114B2	2004-08-06	2011-05-31	Ipeak Networks Incorporated	System and method for achieving accelerated throughput
EP1787457A4 *	2004-09-06	2009-11-04	Nokia Corp	System and method for initiating auxiliary communication interfaces via a membership-based network
US20060075064A1 *	2004-09-30	2006-04-06	International Business Machines Corporation	Concurrent ftp read and write
US20060235883A1	2005-04-18	2006-10-19	Krebs Mark S	Multimedia system for mobile client platforms
US8473005B2 *	2005-04-29	2013-06-25	Siemens Aktiengesellschaft	FM transmitter for mobile communication device
US8543095B2 *	2005-07-08	2013-09-24	At&T Mobility Ii Llc	Multimedia services include method, system and apparatus operable in a different data processing network, and sync other commonly owned apparatus
CN100562144C *	2005-09-29	2009-11-18	北京银奇数据系统有限公司	Non-interference service management system and service implementation method
US8249559B1	2005-10-26	2012-08-21	At&T Mobility Ii Llc	Promotion operable recognition system
EP1955144A4 *	2005-11-09	2011-12-14	Chipcon As	Over-the-air download (osd) methods and apparatus for use in facilitating application programming in wireless network devices of ad hoc wireless communication networks
US20070160135A1 *	2006-01-13	2007-08-02	Dilithium Networks Pty Ltd.	Multimedia content exchange architecture and services
US9344862B2 *	2006-11-13	2016-05-17	Samsung Electronics Co., Ltd	System and method for providing converged messaging service
GB0719233D0 *	2007-10-02	2007-11-14	Skype Ltd	Method of transmitting data in a communication system
JP5012397B2 *	2007-10-16	2012-08-29	日本電気株式会社	Communication system, method, apparatus, and program
US8819741B2 *	2008-04-03	2014-08-26	Microsoft Corporation	Streaming video over a wireless network
US7979557B2 *	2008-04-11	2011-07-12	Mobitv, Inc.	Fast setup response prediction
WO2010087879A1 *	2009-01-30	2010-08-05	Rebelvox, Llc	Method and device for near real-time communication
CN101707686B *	2009-10-30	2015-05-06	中兴通讯股份有限公司	Method and system for sharing video between mobile terminals
US20110249667A1	2010-04-13	2011-10-13	Rebelvox, Llc	Apparatus and method for transmitting media using either network efficient protocol or a loss tolerant transmission protocol
US10951743B2	2011-02-04	2021-03-16	Adaptiv Networks Inc.	Methods for achieving target loss ratio
US8711790B2	2011-02-07	2014-05-06	LivQoS Inc.	Mechanisms to improve the transmission control protocol performance in wireless networks
US9590913B2	2011-02-07	2017-03-07	LiveQoS Inc.	System and method for reducing bandwidth usage of a network
US9137294B2 *	2011-08-19	2015-09-15	KeepTree, Inc.	Method, system, and apparatus for future delivery of digital content over a network
US20130171982A1 *	2011-12-28	2013-07-04	Cisco Technology, Inc.	Method and apparatus for remote secure access to wireless network
KR101397592B1	2012-03-21	2014-05-20	삼성전자주식회사	Method and apparatus for receiving multimedia contents
DE102013100238B4 *	2013-01-10	2015-09-17	Jürgen Knecht	Method and system for transmitting information between two terminals

CN107426088A *	2017-07-20	2017-12-01	北京小米移动软件有限公司	Pictorial information processing method and processing device

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
CN1393090A	2003-01-22	Method for forming multimedia streaming session
CN1656789A	2005-08-17	System for adaptation of sip messages based on recipient's terminal capabilities and preferences
CN1656768A	2005-08-17	Multimedia messaging method and system
US8422485B2	2013-04-16	Method and system for providing multimedia portal contents in communication system
US20100257566A1	2010-10-07	Broadcast storage arrangement
CN1708754A	2005-12-14	System and method for conveying terminal capability and user preferences-dependent content characteristics for content adaptation
CN1833391A	2006-09-13	Reducing effects caused by transmission channel errors during a streaming session
CN1960453A	2007-05-09	Quick method and system for digital channel, and device for creating auxiliary channel
CN1946162A	2007-04-11	Method for obtaining EPG and IPTV service system
CN1801811A	2006-07-12	Mobile mail terminal adapting method and system
CN101043614A	2007-10-03	Auxiliary content handling over digital communication systems
CN1914877A	2007-02-14	Transmission of asset information in streaming services
CN1679299A	2005-10-05	Method of streaming multimedia data
CN1662889A	2005-08-31	Electronic mail delivery system, mail server, and mail client
CN1925486A	2007-03-07	Digital television multimedia message system framework and communication protocol thereof
CN1787682A	2006-06-14	Method and system for sending video signal between different types of user agents
CN1801785A	2006-07-12	Multimedia content interaction system based on instantaneous communication and its realizing method
CN1913444A	2007-02-14	Mobile terminal and method for implementing flow media download on mobile terminal
CN1777186A	2006-05-24	Method for realizing information and application service for mobile instant communication
CN1711786A	2005-12-21	Flow-type transmission of medium in multi-media information receiving-transmitting service
CN101052048A	2007-10-10	Conversation initiating protocol calling method, middle ware and conversation initiating protocol user agency
CN101383841A	2009-03-11	Quasi-real-time stream implementing method for mobile stream media service
CN1933476A	2007-03-21	Subscribing method based on session sponsor protocol
CN1764167A	2006-04-26	Network flow data transmitting system

Priority And Related Applications

Applications Claiming Priority (2)

Application	Filing date	Title
FI20001741A	2000-08-02	communication Server
FI20001741	2000-08-02	

Legal Events

Date	Code	Title	Description
2003-01-22	C06	Publication	
2003-01-22	PB01	Publication	
2003-08-06	C10	Entry into substantive examination	

2003-08-06	SE01	Entry into force of request for substantive examination	
2009-10-28	C14	Grant of patent or utility model	
2009-10-28	GR01	Patent grant	
2012-03-28	ASS	Succession or assignment of patent right	**Owner name**: NOKIA 2011 PATENT TRUST CO. **Free format text**: FORMER OWNER: NOKIA OYJ **Effective date**: 20120217
2012-03-28	C41	Transfer of patent application or patent right or utility model	
2012-03-28	C56	Change in the name or address of the patentee	**Owner name**: 2011 INTELLECTUAL PROPERTY ASSET TRUST CO. **Free format text**: FORMER NAME: NOKIA 2011 PATENT TRUST CO.
2012-03-28	CP01	Change in the name or title of a patent holder	**Address after**: Delaware **Patentee after**: Nokia Corp. **Address before**: Delaware **Patentee before**: NOKIA 2011 patent trust
2012-03-28	TR01	Transfer of patent right	**Effective date of registration**: 20120217 **Address after**: Delaware **Patentee after**: NOKIA 2011 patent trust **Address before**: Espoo, Finland **Patentee before**: Nokia Oyj
2012-05-23	ASS	Succession or assignment of patent right	**Owner name**: CORE WIRELESS LICENSING S.A.R.L. **Free format text**: FORMER OWNER: 2011 INTELLECTUAL PROPERTY ASSET TRUST CO. **Effective date**: 20120417
2012-05-23	C41	Transfer of patent application or patent right or utility model	
2012-05-23	TR01	Transfer of patent right	**Effective date of registration**: 20120417 **Address after**: Luxemburg Luxemburg **Patentee after**: Core Wireless Licensing S.A.R.L. **Address before**: Delaware **Patentee before**: Nokia Corp.
2021-08-17	CX01	Expiry of patent term	**Granted publication date**: 20091028
2021-08-17	CX01	Expiry of patent term	

Concepts

machine-extracted

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Name	Image	Sections	Count	Query match
communication		claims,abstract,description	123	0.000
computer program		claims,abstract,description	24	0.000
Methylmethionine sulfonium salt		claims,abstract	12	0.000
biological transmission		claims,description	124	0.000
corresponding		abstract,description	5	0.000

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[19] 中华人民共和国国家知识产权局

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[32] 2000.8.2 [33] *FI* [31] 20001741

[86] 国际申请 *PCT/FI*01/00686 2001.7.30

[87] 国际公布 *WO*02/11398 英 2002.2.7

[85] 进入国家阶段日期 2002.5.27

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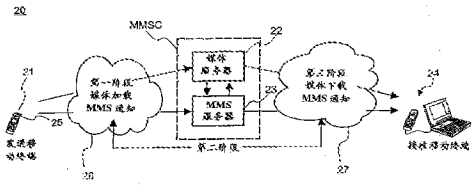
代理人 杨 凯 张志醒

权利要求书 4 页 说明书 18 页 附图 5 页

[54] 发明名称 形成多媒体流式传输对话的方法

[57] 摘要

一种通信方法,包括步骤:发送器 21 将包括了至少一个流式分量和描述此流式分量的信息的消息传送给通信服务器 *MMSC*,通信服务器作出响应,将通知消息发送给接收器 24,通知可以接收此流式分量。通知消息是多媒体消息,包括对流式分量的描述。通信服务器 *MMSC* 和接收器形成流式传输对话,利用描述流式分量的信息来传送流式分量。然后通信服务器 *MMSC* 在流式传输对话中将流式分量以顺序子部分的形式传送给接收器 24。还介绍了与这种方法相关的通信系统 20,通信服务器 *MMSC*,通信设备 21,24 和计算机程序产品。



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包括在所述内容的产生完成之前发送所述描述内容的信息的步骤。

9. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括在所述通知消息中将所述描述内容的信息从所述通信服务器发送到所述第二终端的步骤。

10. 如上述权利要求中任一项所述的通信方法，其特征在于，所述通信服务器包括用于存储和传送所述内容的内容服务器以及用于接收和传送所述通知消息的通知服务器，其特征在于所述内容服务器和通知服务器具有物理关系，所述物理关系从由单一单元、分开单元、分布在不同地理位置的分开单元组成的组中选择。

11. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括作为多媒体消息服务(MMS)的一部分来执行所述方法。

12. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括将所述内容多信道传送给除所述第二终端之外的至少一个其它终端。

13. 一种通信系统(20)，包括:

包括第一终端(21)和第二终端(24)的多个终端(21,24);

可访问所述多个终端的通信服务器(MMSC);

用于从所述第一终端(21)中发送内容和描述内容的信息给所述通信服务器(MMSC)的装置(52)；以及

用于从所述通信服务器中发送通知消息给所述第二终端(24)的装置(23)，所述通知消息通知所述第二终端(24)可以接收所述内容;

其特征在于，所述系统还包括:

利用所述描述内容的信息在所述通信服务器(MMSC)和第二终端(50)之间形成流式传输对话的装置(22;52);

在所述流式传输对话期间将所述内容从所述通信服务器中以顺序子部分的形式传送给所述第二终端(24)的装置(22)。

14. 如权利要求 13 所述的通信系统，其特征在于，所述通信系统还包括在所述第一终端(21)产生所述内容的装置(25)。

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1. 一种通信方法，包括步骤:

通过通信服务器从第一终端中接收内容和描述所述内容的信息;

从所述通信服务器中发送通知消息给第二终端，所述通知消息通知可以接收所述内容;

其特征在于，所述方法还包括:

利用所述描述内容的信息在所述通信服务器和第二终端之间形成流式传输对话; 和

在所述流式传输对话期间从所述通信服务器中以顺序子部分的形式将所述内容传送给所述第二终端。

2. 如权利要求 1 所述的通信方法，其特征在于，所述方法还包括以分开的消息形式将所述内容和描述内容的信息从所述第一终端发送给所述通信服务器。

3. 如权利要求 1 或 2 所述的通信方法，其特征在于，所述方法还包括通过所述通信服务器将所述描述内容的信息作为多媒体消息的媒体分量传送给所述第二终端。

4. 如上述权利要求中任一项所述的通信方法，其特征在于，所述内容包括至少一个非流式分量和至少一个流式分量的描述。

5. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括在所述通信服务器传送所述内容给所述第二终端之前所述第二终端请求获得所述内容。

6. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括在所述第一终端产生所述内容。

7. 如权利要求 6 所述的通信方法，其特征在于，所述方法还包括将在所述第一终端产生的所述内容流式传输到所述通信服务器中的步骤。

8. 如权利要求 6 或 7 所述的通信方法，其特征在于，所述方法还

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15. 如权利要求 13 或 14 所述的通信系统，其特征在于，所述通信服务器(MMSC)包括通知服务器(23)，用以从所述第一终端(21)中接收所述描述内容的信息，并发送所述通知消息给所述第二终端(24)。

16. 如权利要求 13 到 15 中任一项所述的通信系统，其特征在于，所述通信服务器还包括内容服务器(22)，用以从所述第一终端(21)中接收所述内容，并发送所述内容给所述第二终端(24)。

17. 一种用于服务多个终端(21,24)的通信服务器(MMSC)，所述通信服务器包括:

从第一终端(21)中接收内容和描述所述内容的信息的装置；以及

将通知消息发送给第二终端(24)的装置，所述通知消息通知所述第二终端可以接收所述内容;

其特征在于，所述通信服务器(MMSC)还包括:

利用所述描述内容的信息而与所述第二终端形成流式传输对话的装置(22)；以及

在所述流式传输对话期间将所述内容以顺序子部分的形式传送给所述第二终端的装置(22)。

18. 一种计算机程序产品，包括:

计算机程序代码，可使通信服务器从第一终端中接收内容和描述所述内容的信息；以及

计算机程序代码，可使所述通信服务器发送通知消息给第二终端，所述通知消息通知所述第二终端可以接收所述内容;

其特征在于，所述计算机程序产品还包括:

计算机程序代码，可使所述通信服务器利用所述描述内容的信息在所述通信服务器和第二终端之间形成流式传输对话；以及

计算机程序代码，可使所述通信服务器在所述流式传输对话期间将所述内容以顺序子部分的形式传送给所述第二终端。

19. 一种通信设备(21,24)，包括:

用于从通信服务器(MMSC，23)中接收所述通信设备(21,24)所需的

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描述消息的信息的装置(52);

其特征在于,

所述消息包括流式分量;以及

所述描述消息的信息包括描述所述流式分量的信息;

所述通信设备(21,24)还包括:

利用所述描述流式分量的信息而与所述通信服务器(MMSC)形成流式传输对话以接收所述流式分量的装置(52,55);以及

从所述通信服务器中以顺序子部分的形式接收内容的装置(52)。

20. 一种计算机程序产品,包括:

计算机程序代码,可使通信设备从通信服务器中接收所述通信设备所需的描述消息的信息;

其特征在于,

所述消息包括流式分量;以及

所述描述消息的信息包括描述所述流式分量的信息;

所述计算机程序产品还包括:

计算机程序代码,可使所述通信设备通过利用所述描述流式分量的信息而与所述通信服务器形成流式传输对话以接收所述流式分量;以及

计算机程序代码,可使所述通信设备以顺序子部分的形式从所述通信服务器中接收内容。

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形成多媒体流式传输对话的方法

本发明涉及通信服务，尤其但不唯一地涉及多媒体消息服务(MMS)中的流式传输。

电子邮件(email)是一种消息传递服务，可允许以电子格式进行快速、经济的通信。电子邮件消息通过因特网可以送至世界各地，而且在许多情况下都是免费的。另外，相同的电子邮件消息可以传送给多个接收者。此项技术称为多信道传送。由于电子邮件消息的传递是完全自动的，因此电子邮件消息可以在发送后很短时间内送达。电子邮件消息可以携带计算机文件如文档，程序文件和不同的媒体文件如音频或视频剪辑。

拥有个人计算机(PC)的普通家庭用户不愿意将 PC 与他们的电子邮件系统(例如因特网)永久地连接，而是希望在上一次电子邮件消息读取对话后与存储消息的电子邮件服务器建立临时和远程的连接。利用这种连接和电子邮件消息读取程序，新的电子邮件消息可从电子邮件服务器传送到 PC 的存储器或硬盘中，然后在连接时读取或者是在连接关闭后读取。PC 和电子邮件服务器之间的数据传送通常利用与 PC 连接的调制解调器来进行。

在下文中，术语“发送器”是指用于传送接收器所需数据的装置，“接收器”是指用于接收数据且数据希望送达的装置。

图 1 表示了基于因特网的电子邮件系统 10 的示意图，它包括发送器 11、接收器 15、具有发送器的电子邮件服务器 13 和接收器的电子邮件服务器 14 的因特网 12。

在因特网中，电子邮件消息利用一些众所周知的协议来传送。简单地说，电子邮件消息一旦写好就分成为标有接收器地址的单个单元，并传送给发送器的电子邮件服务器。发送器的电子邮件服务

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器将消息通过因特网转发给接收器的电子邮件服务器。当下一步接收器通过因特网与接收器的电子邮件服务器连接并通过电子邮件读取程序检查是否已收到新的电子邮件时，接收器可以通过连接(如调制解调器连接)下载任何新收到的电子邮件消息。当已完全接收电子邮件消息时，接收器可将其显示给用户。应注意的是，在传送的各个阶段，根据所利用的数据传送协议通常将电子邮件消息分成许多小的信息包。在接收时，接收器将所有的信息包收集在一起，将它们以正确的顺序(如需要的话)组合，将电子邮件消息重建为原有的格式，最后将电子邮件消息显示给接收器的用户。

上述电子邮件传送系统很方便，并可实现多信道传送，但它最适合接收电子邮件消息并在用户方便的时候显示消息，这也是其最初的目的。因此，给定电子邮件消息的内容只能在完成电子邮件消息到接收器的传送后才能被访问。这对纯文本格式的电子邮件消息来说不存在真正的问题，但对于大量的媒体或多媒体内容(剪辑)来说就存在着缺点，即接收器用户无法在下载仍在进行时启动显示剪辑。另一个缺点是为了接收电子邮件消息，接收器必须有足够大的内存来容纳整个消息。特别是在移动通信网络或者是部分通信线路是由无线电连接形成的任何其它网络中，还有一个问题是接收较长的电子邮件消息是否会由例如无线电覆盖的临时损耗或恶化而发生中断或错误。移动终端还只有有限的内存来存储接收到的电子邮件消息，这进一步加剧了与在接收器中容纳消息有关的问题。通过多媒体消息服务(MMS)能至少部分地减轻这些问题。

MMS 是一种新型的端对端消息发送方法，用于具有文本和/或多媒体内容的多媒体消息的单向传送。MMS 提供了在移动用户之间和移动用户与因特网之间发送多媒体消息的可能性。这是执行第三代移动通信网络中的 MMS 的已达成共识的解决方案。在第三代合作项目(3GPP)技术规范 23.140 V.3.0.1 “多媒体消息服务(MMS)，功能描述，第二级(1999 年版)”中描述了所提出的 MMS 当前的确定特征。

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在 3GPP 23.140 中提出的 MMS 利用存储转发方法以传送多媒体消息。多媒体消息构建成使媒体内容、描述内容所必需的信息和识别多媒体消息所希望的接收器的地址信息封装在一起。然后将多媒体消息发送给 MMS 中心 MMSC，后者又向接收器通知可以接收此多媒体消息。接收终端整体地下载多媒体消息，一旦下载完毕并存储在接收终端中后就显示给用户。

应该理解的是，虽然术语“多媒体消息”通常描述的是含有超过一种类型的内容的消息，但在此应用中，此术语延伸到只含有一种媒体类型的消息。

当前所指定的 MMS 具有接收终端必须在将多媒体消息显示给用户之前存储多媒体消息的缺点。因此，接收终端的存储器大小决定了所能下载的多媒体消息大小的上限。国际专利申请 WO99/166746 通过在整个信息不适合接收终端的存储器时将消息分成多个子消息(片段)而解决了这一问题。这些子消息很小，足以使得接收终端可以将各子消息整个地单独下载。在这种情况下，接收终端首先下载第一子消息。在完全下载了第一子消息后，接收终端可以显示第一子消息。在显示了第一子消息后接收终端可下载第二子消息并显示第二子消息。下载每一子消息并单独地显示各子消息。子消息的大小由接收终端的存储器大小而定，其必须小到能存入存储器中。

除了 MMS 之外，在因特网中还利用流式传输技术来通过固定线路传送信息。术语“流式传输”通常用于描述在媒体流通过数据网络传送给客户时以连续的方式显示这个或这些媒体流，例如音频或视频流，或者是不同流的结合。“流”通常是指可使接收器显示一些连续数据如运动画面、声音或音乐的数据流。在典型的视频流中，每秒传送 10 到 20 帧图像。实际上，流式传输可以是实况(实时)的，或者是以请求模式来执行的。如其名称所示的那样，“实况流式传输”描述了从实况源、如由视频照相机所产生的数字图像流中形成媒体流，而“请求式流式传输”描述了从例如存储在服务器中的文

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件中形成媒体流。流式传输还涉及建立流式传输对话，在此期间信息流传送给客户。

流式传输具有两个十分重要的功能，即流式传输控制和媒体传输。流式传输控制涉及利用已协商或预配置的参数值组来建立、管理和终止流式传输对话。媒体传输涉及在建立对话的过程中利用已同意或已协商的传输协议来传输媒体。例如，在因特网中存在达成广泛共识的协议，可提供流式传输控制和媒体传输的功能，这些协议可以在流式传输应用中作为传输协议。

虽然流式传输广泛应用于因特网中，但仍然需要对其进行调整，以适于在移动通信网络中使用。应该理解的是，由于移动终端通常只具有有限的存储能力(存储器)，因此在移动网络中希望使用流式传输。然而，目前的移动通信网络不支持流式传输，其原因如下所述。

如当前 MMS 规范中所提出的包含有媒体内容、消息描述和地址信息的单一封装体与媒体内容的流式传输不兼容。为了建立流式传输的对话，接收终端需要预先知道与媒体内容有关的一定的信息。这些信息包括但不限于包含在多媒体消息中的媒体类型，媒体的编码方式，以及可用来下载媒体内容的合适的传输协议。由于当前的 MMS 规范需要描述媒体内容的信息与多媒体消息本身封装在一起，接收终端无法得到关于媒体内容属性的先验知识，因而无法建立任何形式的流式传输对话。因此，根据目前的 MMS 规范，必须将整个多媒体消息下载到接收终端中以抽取多媒体内容的细节。只有在此之后才能播放任何媒体内容，例如视频和/或音频剪辑给接收终端的用户。由于多媒体剪辑通常具有大量的位，因而接收终端如移动站需要相对较大的存储器来完全地接收剪辑，这就限制了当前 MMS 的使用。多媒体消息在显示前需要完全地下载，在一定条件下，例如在多媒体消息很大时，或者连接的数据传输率很低时，还产生了显著的延误。

还应强调的是由当前的 MMS 规范所建议的寻址方案不能促进在

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此系统中进行流式传输。当前的MMS可视为“面向发送器”的系统。换句话说，发送器决定将何种媒体内容发送给接收器，将媒体内容封装在多媒体消息中并将其传送给所需的接收器。另一方面，流式传输更倾向于“面向接收器”。为建立流式传输对话，通常需要在接收器和发送器，例如基于网络的服务器之间形成流式传输连接，一旦建立了必要的连接，内容就从服务器中流式传送。因此，流式传输对话的建立需要接收器知道媒体内容的位置，但不需要要求媒体内容直接地寻址接收器。

现在发明了一种新的解决方法，它可以避免或至少减轻现有技术中的问题。

根据本发明的第一方面，提供了一种通信方法，包括步骤:

通过通信服务器从第一终端中接收内容和描述此内容的信息;以及

从通信服务器中发送通知消息给第二终端，通知消息通知可以接收内容;

其特征在于，所述方法还包括:

利用描述内容的信息在通信服务器和第二终端之间形成流式传输对话；以及

在流式传输对话期间以顺序子部分的形式将内容从通信服务器中传送给第二终端。

由于利用第二终端的接收器不需要等到内容完全地被接收，因此以流的形式将内容传送给第二终端可允许对内容进行快速存取。

内容和描述内容的信息最好以分开的消息形式从第一终端发送给通信服务器。这就允许分开地进行发送，例如将内容发送给一个通信服务器和将通知消息发送给接收器。

描述内容的信息最好在通知消息中从通信服务器发送给第二终端。

所述方法最好还包括通过通信服务器将描述内容的信息作为多

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媒体消息的媒体分量发送给第二终端。

发送作为媒体分量的流式分量的描述允许在微小变化范围内利用现有的多媒体消息系统。它还允许在同一多媒体消息中嵌入超过一个媒体分量，其中一些或所有媒体分量可以是流式分量的描述。

多媒体消息最好包括至少一个非流式分量和至少一个流式分量的描述。

通信方法最好还包括在流式传输对话期间以流的形式在第二终端处显示所接收的内容的步骤。第二终端可以立刻启动并显示内容，并可以在传送期间进行一定的操作(如暂停或终止数据传送)。

所述方法最好还包括在第二终端处决定在某一时间是否接收内容，以及如果决定接收内容的话就形成流式传输对话的步骤。

通信服务器最好包括用于存储和传送内容的内容服务器以及用于接收和传送通知的通知服务器，其中内容服务器和通知服务器具有物理关系，该物理关系从由单一单元、分开单元、分布在不同地理位置处的分开单元组成的组中选择。

通信方法最好还包括在第一终端处产生内容的步骤。在第一终端处产生的内容最好流向内容服务器，且内容的传送在产生内容的期间进行。从而，与内容在第一终端处完全地产生或大部分产生后再流向内容服务器相比，用户就可以更早地获得内容。

当采用流式内容的产生时，描述内容的信息最好在内容产生完成之前发送，因此第二终端可以在内容产生完成之前开始接收内容。

在通信服务器和第二终端之间的流式传输对话期间，接收器最好可以发布终止命令来终止对话。流式传输对话最好响应终止命令而终止。

通知消息最好包括第二终端所要求的信息，以便与内容服务器形成流式传输对话。

所述方法最好作为多媒体消息服务(MMS)的一部分来执行。

所述方法最好还包括在至少一个其它流式传输对话中将内容多

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信道传送给除第二终端之外的至少一个其它终端的步骤。

在具有多个流式传输对话的实施例中，各流式传输对话可以与其它流式传输对话相对独立地形成，因此对话可以在不同的时间或相同的时间开始或结束。各对话最好可以响应各个终端并独立于其它流式传输对话而终止。

根据本发明的第二方面提供了一种通信系统，包括：

具有第一终端和第二终端的多个终端；

可访问多个终端的通信服务器；

用于从第一终端中发送内容和描述内容的信息给通信服务器的装置；以及

用于从通信服务器中发送通知消息给第二终端的装置；

其特征在于，所述系统还包括：

利用描述内容的信息在通信服务器和第二终端之间形成流式传输对话的装置；以及

在流式传输对话期间将内容从通信服务器中以顺序子部分的形式传送给第二终端的装置。

所述系统最好还包括可在第一终端处产生内容的装置。

所述系统最好还包括可在流式传输对话期间在第二终端处以流的形式显示所接收的内容的装置。

根据本发明的第三方面提供了一种用于服务多个终端的通信服务器，所述通信服务器包括：

从第一终端中接收内容和描述内容的信息的装置；以及

将通知消息发送给第二终端的装置，通知消息通知第二终端可以接收内容；

其特征在于，所述服务器还包括：

利用描述内容的信息与第二终端形成流式传输对话的装置；以及

在流式传输对话期间将内容以顺序子部分的形式传送给第二终

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端的装置。

根据本发明的第四方面提供的一种计算机程序产品，包括:

计算机程序代码，可使通信服务器从第一终端中接收内容和描述内容的信息；以及

计算机程序代码，可使通信服务器将通知消息发送给第二终端，通知消息通知第二终端可以接收内容;

其特征在于，所述计算机程序产品还包括:

计算机程序代码，可使通信服务器利用描述内容的信息在通信服务器和第二终端之间形成流式传输对话；以及

计算机程序代码，可使通信服务器在流式传输对话期间将内容以顺序子部分的形式传送给第二终端。

根据本发明的第五方面提供了一种通信设备，它包括:

用于从通信服务器中接收通信设备所需的描述消息的信息的装置;

其特征在于，

所述消息包括流式分量;

描述消息的信息包括描述流式分量的信息；以及

所述通信设备还包括:

利用描述流式分量的数据而与通信服务器形成流式传输对话，以便接收流式分量的装置；以及

从通信服务器中以顺序子部分的形式接收内容的装置。

根据本发明的第六方面提供了一种计算机程序产品，包括:

计算机程序代码，可使通信设备从通信服务器中接收通信设备所需的描述消息的信息;

其特征在于，

所述消息包括流式分量;

描述消息的信息包括描述流式分量的信息；以及

所述计算机程序产品还包括:

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计算机程序代码，可使通信设备通过利用描述流式分量的信息而与通信服务器形成流式传输对话，以便接收流式分量；以及

计算机程序代码，可使通信设备以顺序子部分的形式从通信服务器中接收内容。

通信设备最好为无线通信设备，且最好是移动电话。在另外一个实施例中，无线通信设备是无线通信适配器，可以向外部设备如台式 PC 提供无线通信功能。

根据本发明的第七方面提供了一种通信设备所用的方法，所述方法包括步骤：

从通信服务器中接收通信设备所需的描述消息的信息；

其特征在于，

所述消息包括流式分量；

描述消息的信息包括描述流式分量的信息；以及

所述方法还包括步骤：

通过利用描述流式分量的信息与通信服务器形成流式传输对话，以便接收流式分量；以及

在流式传输对话期间显示流式分量。

根据本发明的一个方面的实施例还可应用于本发明的各个其它方面。简单地说，所有实施例不必重复地与发明的每一方面相关。本领域的技术人员可以在本发明第一方面及其实施例的优点的基础上理解各个其它方面和实施例的优点。

本发明将通过示例并参考附图来进行描述，其中：

图 1 是基于因特网的电子邮件系统的示意图；

图 2 是根据本发明优选实施例的通信系统的图；

图 3 表示了图 2 所示系统的流式数据传送的主协议层；

图 4 表示了根据本发明的优选实施例，在接收器和媒体服务器之间的流式数据传送中发送消息的结构；

图 5 表示了根据本发明的优选实施例，结合于蜂窝无线电话的

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移动通信终端的框图;

图 6 表示了根据本发明另一实施例的用于台式 PC 的无线适配器卡。

在上文中已经介绍了图 1。

接着将简短地概括本发明的优选实施例，然后再参考图 2 到 6 详细地进行介绍。

根据本发明的优选实施例，流式传输结合于多媒体消息服务(MMS)中。在此方面需要进行三个阶段的过程。在第一阶段(阶段 1)中，发送器(发送终端)将多媒体消息，或更准确地说是媒体内容传送给媒体(流式传输)服务器。在第二阶段(阶段 2)中，一个或多个接收器(接收终端)被通知可以接收所传送的媒体内容。在第三阶段(阶段 3)中，媒体内容被传送给接收器。在阶段 2 中进行的通知最好通过由发送器经多媒体消息服务器(MMS)将通知消息发送给接收器来进行。一般来说，MMS 服务器存储通知消息，然后将其转发给接收器。如果转发不成功，它将在晚些时候再发送所存储的通知消息。

流式传输最好在第一和第三阶段中进行，即当上传媒体内容到媒体(流式传输)服务器时和从媒体(流式传输)服务器中下载媒体内容时。应注意的是，上传阶段(阶段 1)中的流式传输不是本发明方法的主要特征。然而，在阶段 1 和 3 中利用流式传输可以减小从发送器中开始传送媒体内容和在接收器中开始进行流式传输之间的延迟。它还具有可减小媒体(流式传输)服务器所需的存储容量的效果，并能有效地在 MMS 中实现实时或接近实时的流式传输。

本方法的阶段 2 可视为消息控制阶段，它涉及通过 MMS 服务器将多媒体消息和与流式传输有关的信息转发给接收器(多媒体消息的目标接收器)。阶段 1 和 2 可顺序地或基本同时地进行，而阶段 3 可以在接收器接收到通知消息时自动地进行，或者是根据接收器用户的意愿晚些时候再进行。因此，本发明提供了接收器可在任何时间播放流式媒体内容的灵活性。优选实施例并没有在媒体内容的大小

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或在多信道传送时接收器的数量方面加以限制。优选实施例是基于存储-转发方法，因此它符合其它 MMS 方法。这就使得任何不能流化或者类型不适于进行流式传输的媒体内容可以通过如当前 MMS 规范中指定的传统方式被下载到接收器中。

本发明的一个优点是流式传输功能的实施可在多方面增强所建议的 MMS，尤其是在媒体内容很大或是在进行多信道传送时。由于在 MMS 中进行流式传输的存储-转发方法使得接收器可以充分灵活地决定是否和何时接收和播放多媒体消息中的媒体内容，因此这种方法是有效的和所希望的。本发明还在所建议的 MMS 的框架中提供了流式传输功能，因此它和现有的 MMS 标准完全兼容。

下文中描述的本发明的实施例将概述在 MMS 中进行流式传输的主要步骤。

图 2 是根据本发明优选实施例的通信系统 20 的图。系统 20 包括发送器 21，具有媒体服务器 22 和 MMS 服务器 23 的 MMS 中心(MMSC)，以及接收器 24。MMSC 还可被视为通信服务器。

在这个多媒体消息流存储方法的示例中，发送器 21 为移动终端，装有视频照相机 25 和可生成要传送给接收器 24 的媒体内容(音频/视频剪辑)的麦克风(未示出)。接收器 24 为移动终端，装有适当的显示软件和可显示媒体内容(音频/视频剪辑)的设备。通常，发送器 21 和接收器 24 是相似的设备，之所以其中之一为发送器 21 而另一个为接收器 24，只是因为它们的角色为发送方和接收方(发送器和接收器)。下面将详细地描述本发明方法的三个阶段。

在阶段 1 中，发送器 21 与媒体(流式传输)服务器 22 之间建立流式传输对话，媒体(流式传输)服务器 22 开始在预定位置存储媒体内容。这个阶段可视为媒体上传阶段。

在阶段 2 中，发送器 21 通过 MMS 服务器 23 发送通知给接收器 24，通知有关被存储的媒体内容。通知包括在接收器 24 和媒体服务器 22 之间建立另一流式传输对话所需的显示描述信息。显示描述信

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息包括但不限于下述数据：媒体服务器的网络地址；存取机制的具体内容，通过存取机制可以从媒体服务器 22 中重新获得媒体内容；将进行流式传输的媒体类型；用于对媒体内容进行编码的编码方法和用于下载媒体的传输协议的指示。

在阶段 3 中，接收器 24 基于所接收的通知消息中的信息而建立与媒体服务器 22 的流式传输对话，接收器 24 开始下载并播放媒体。这个阶段可视为媒体下载阶段。媒体内容按照内容子部分的顺序来下载，各子部分代表流式传输对话的一个时间段。内容子部分可以分成数据信息包，或者一个子部分可包括多于一个数据信息包，这取决于媒体内容的编码类型和数据信息包的支付负荷的大小。

媒体服务器 22 和 MMS 服务器 23 可以合并在一起，或者在网络中保持为不同的实体，取决于控制它们的服务提供器所选择的执行过程。媒体服务器 22 可位于例如移动通信网络中或位于因特网中，可以处于服务提供器的控制下而不负责移动通信网络中服务的提供。

当在阶段 1 和阶段 3 都进行流式传输时，(通知)阶段 2 在(媒体上传)阶段 1 的期间进行，(媒体下载)阶段 3 也可在阶段 1 的期间开始。发送器 21 继续将媒体内容发送给媒体服务器 22，而媒体服务器 22 同时将媒体内容中早先收到的部分发送给接收器 24。接收器开始(且继续)播放媒体内容，其总的延迟取决于流式传输过程、数据传输延迟和阶段 3 开始的时间。如果阶段 3 不是自动地开始而是在提示和接收到接收器 24 的用户的允许时开始，那么总的延误通常大于在接收器 24 接收到通知时就立刻开始阶段 3 的延误。

在另一实施例中，媒体内容已经存储在媒体服务器 22 中，发送器 21 知道媒体内容的显示描述信息。在此情况中可以省略阶段 1。如上所述，媒体内容的流式传输对阶段 1 来说并不重要。例如，阶段 1 的非流式传输方法可以与商用内容提供器所提供的媒体内容结合使用，商用内容提供器例如为位于通信网络如因特网中的新闻内

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容提供器。内容提供器利用非流式传输在 IP 连接上的传送来更新存储在媒体服务器 22 中的媒体内容，并利用根据本发明阶段 2 的通知消息通知媒体内容的潜在接收器关于感兴趣的新剪辑的消息。通知消息的接收者如用户会向特定的内容提供器订阅。在通知消息的基础上，在各个方便的时间，各接收者决定是否与媒体服务器 22 形成流式传输对话，以重新获得由特定内容提供器所提供的新的媒体内容。这还代表了一种多信道传送方法的示例，它利用根据本发明的多媒体消息系统来进行流式传输。

根据本发明的另一实施例，显示描述信息可以存储在除 MMS 服务器 23 或媒体服务器 22 之外的服务器中，如电子邮件或万维网服务器。在此实施例中，发送给接收器 24 的通知消息识别存储了显示描述信息的特定服务器，并用存取机制(HTTP GET, WSP GET, IMAP4, POP3, RSTP DESCRIBE)从那个位置上重新获得显示描述信息。然后，服务器 24 利用指定的存取机制从通知消息所识别的服务器中重新获得显示描述信息。然后，所得的显示描述信息引导服务器 24 调用此方法的阶段 3，以重新获得和播放所存储的媒体内容。如果用于存储显示描述信息的服务器是 MMS 服务器 23，当前的 MMS 方法可以用来直接地重新获得显示描述信息。在这种情况下，从发送器 21 到 MMS 服务器 23 的 MMS 通知携带显示描述信息，显示描述信息存储在 MMS 服务器 23 中。然后，从存储了显示描述的服务器到接收器 24 的通知中携带了所存储的显示描述的位置、服务器地址和其它所需的信息。最后，接收器 24 跟随 MMS 从 MMS 服务器 23 中重新获得显示描述。

因此应该注意的是，在某些情况下，发送器 21 发送给 MMS 服务器 23 的通知消息的信息内容可以和 MMS 服务器 23 发送给接收器 24 的信息内容不同。

根据本发明的优选实施例，如果发送器 21 和接收器 24 处于不同的相互连接的 MMS 服务器的管理下(即它们具有不同的“服务”

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制层 31,32 提示给媒体传输层 33。在优选实施例中，媒体流式传输控制根据媒体传输层 33 所通知的数据传输通道来适应流式传输。

图 4 表示了根据本发明的优选实施例，在流式媒体内容下载期间接收器 24 和 MMSC(或媒体服务器 22)之间发送的不同控制消息的结构。它表明了当利用 RTP/RTCP 作为传输协议时，利用 RTSP 对话在接收器 24 中播放媒体剪辑的信息流。这就给出了可用于在本发明的阶段 3 中下载媒体剪辑的方法的一个示例。下面将说明发送给接收器 24 的控制消息。

接收器 24 要求得到它在阶段 2 中已被通知的媒体内容。接收器 24 将用于建立流式传输的 RTSP 建立信息(41)发送给 MMSC，并接收相应的确认(41_ACK)。然后接收器 24 将 RTSP 播放指令消息(42)发送给 MMSC，并接收相应的确认(42_ACK)。MMSC 响应此播放指令，根据所发送的多媒体消息开始将 RTP 音频(43)和 RTP 视频(44)内容发送给接收器 24。接收器 24 可通过 RTCP 消息(45)控制 MMSC 发送媒体内容。一旦接收器 24 的用户希望暂停内容的流式传输下载，他或她可请求暂停流式传输，作为响应，接收器将 RTSP 暂停消息(46)发送给 MMSC，并接收相应的确认(46_ACK)。响应此 RTSP 暂停消息，MMSC 暂停发送媒体内容(RTP 音频和 RTP 视频)。接着，接收器 24 将 RTSP 拆卸消息(teardown message)(47)发送给 MMSC 来停止 RTP 对话，允许在迟些时候再继续进行流式传输。MMSC 将相应的确认消息(47_ACK)发送回接收器 24。

通过用 RECORD 代替 PLAY 指令，可以实现与本发明的阶段 1 中媒体上传相似的对话，其中在接收器 24 的位置上应为发送器 21。

消息控制功能要求能进行端对端通知，这是因为如先前所述，接收器 24 要求与媒体内容有关的一定信息能进行流式化，以便加入到流式传输对话中。根据当前的 MMS 规范，描述媒体内容的信息与媒体内容本身封装在一起，因此无法独立地发送给接收器 24。在没有此信息时，接收器 24 无法通过流式传输来下载媒体内容。通过提

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多媒体服务器)，通知消息可在 MMS 服务器之间的连接中传送。对于任何端对端通知来说，在服务 MMS 服务器之间可以连接在一起的服务器的数量不受限制。

在因特网域中存在着用于流式传输控制和媒体传输的现有协议。因此阶段 1 和 3 可以基于这些现有协议来执行。在这种方式中，由本发明提供的方法还可保证与因特网的交互工作，这也是当前MMS标准的一个重要目的。阶段 2 符合现有的 MMS 标准，因此可以提供与先前建议的机制之间的向后兼容性，以下载非流式的媒体内容。

下面将通过示例来说明用于完成本发明优选实施例的不同阶段的一些实用方法。

实时流式传输协议(RTSP)是客户-服务器流式传输控制协议，可实现流式多媒体数据在 IP 网络上的可控制的传送。它是一个应用级的协议，可以与传输控制协议(TCP)或用户数据报文协议(UDP)一起使用。RTSP 提供了使用 RTP(实时传输协议)/UDP 或任何其它的低级协议范围以用于媒体传输。RTSP 包括一套控制流式音频和/或视频的方法/指令。在此方面最有用的方法/指令是 OPTIONS, DESCRIBE, ANNOUNCE, SETUP, PLAY, PAUSE, TEARDOWN, REDIRECT 和 RECORD。媒体上传和下载可以利用 SETUP,PLAY,RECORD, PAUSE 和 TEARDOWN 来执行。

超文本传输协议(HTTP)还可用于通过将 TCP 用作传输协议来实现和控制本发明的媒体内容的上传和下载。HTTP 具有对应于 RTSP 中 RECORD 和 PLAY 的方法/指令 PUT 和 GET，可用于媒体的上传(阶段 1)和下载(阶段 3)。

UDP 是无连接的轻量级的传输协议，可提供较短等待时间的通信。RTP 特地为实时通信而设计，执行 RTP 使得它可提供位于 UDP 上层的数据信息包的时间标记和顺序号。多信道传送可利用 RTP 进行。RTP 还设计用于与辅助控制协议 RTCP(实时控制协议)结合使用，以得到有关数据传输的质量和正在进行的对话中的参与者信息的反

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馈。RTP 和 RTCP 一起可提供用于携带实时内容所需的功能和控制机制，因此可实现媒体内容的流式传输，从而可以与本发明结合使用。

TCP 是面向连接的传输协议。与 UDP 相比，它以增加等待时间和更多管理费用为代价来保证数据信息包的准确和顺序的接收。在 TCP 中不能使用多信道传送，但如果初期缓冲时间不重要以及将进行流式化的媒体剪辑相对较短的话，TCP 可以用于流式传输应用中。

在流式传输控制和媒体传输层的上层需要具有消息控制功能，以将流式传输结合于 MMS 中。图 3 表示了根据图 2 的流式数据传输系统的主协议层。消息控制层 31 提供消息发送功能的全面控制。例如在发送器 21 中，消息控制层 31 负责将媒体内容装配到多媒体消息中，并形成包括有描述媒体内容的信息的通知消息，通知消息然后又被发送给所需的接收器 24。在接收器 24 中，消息控制层 31 负责解释所接收到的通知消息，抽取与将进行流式传输的媒体内容的位置有关的信息以及形成流式传输对话所必需的信息，以重新获得媒体内容。消息控制层 31 还负责控制任何不能进行流式传输和/或根据现有 MMS 不适于流式传输的媒体内容的传输和接收。

流式传输层 32 由消息控制层 31 控制。它负责根据消息控制层 31 提供的信息或各媒体类型所预定的规则来对各种要进行流式传输的媒体内容形成流式传输对话。它还负责一旦建立了流式传输对话就控制/调节媒体内容的流式传输。在发送器 21 中，流式传输层 32 负责将媒体内容流式上传到媒体服务器 22 中，相反地，在接收器 24 中，它负责控制从媒体服务器 22 流式下载媒体内容。或者，在媒体服务器 22 中可在这样的情况下提供流式传输控制功能，即在阶段 1 和 3 中进行流式传输，使得在发送器 21 和接收器 24 之间可提供实时或接近实时的媒体内容的流式传输。媒体传输层 33 利用适当的传输协议来处理数据的实际传输。可以为不同媒体类型预先确定协议选择，或者根据通知消息中的信息，通过消息控制层和流式传输控

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供媒体显示信息的分开的端对端通信，根据本发明的方法可以将其所需的信息提供给接收器 24，以便通过流式传输来下载媒体内容。此外，现有的非流式传输 MMS 协议的范围可允许利用端对端消息经由 MMS 服务器来进行媒体显示信息的通信，使得根据本发明的方法与当前的 MMS 标准兼容。

RTSP 被认为是在阶段 1 和 3 中实现和控制流式传输的最佳模式。如果用 RTP/UDP 或 TCP 作为媒体传输协议，在性能上需要进行一定程度的折衷。特别是，由于 TCP 是面向连接的协议，利用 TCP 来完成的话不能提供多信道传送功能。然而，TCP 代表着能与本发明结合使用的另一种可行的媒体传输协议。实际上，其面向连接的特性在某些情况下具有优点，尤其是在需要更安全的流式传输时。根据本发明的优选实施例，现有的 MMS 协议用于在阶段 2 中从发送器 21 经由 MMSC 将显示描述信息的端对端通知提供给接收器 24。

图 5 表示了结合于蜂窝无线电话的移动终端 50(可以是发送器 21 或接收器 24)的框图。移动终端 50 包括显示屏 51，用于传送和接收无线电信号的收发器 52，用于处理无线电信号与数据和声音的数字信号的相互转换的处理器(DSP)53，用户输入装置如小键盘或键盘 54，由软件控制操作的中央处理单元 55。移动终端 50 还包括用于存储数据和软件的存储器 56。存储器可供 DSP53 和 CPU55 使用。软件包括操作系统和可控制移动终端 50 的操作并提供一定功能的应用软件，如 MMS。移动终端 50 还包括可拆卸的智能卡，例如用于用户识别的 SIM 卡 57。存储器 56 专门用于存储应用软件的部分是所谓的永久存储器，其即使在移动终端 50 的能量供应耗尽时也能保存内容。应用软件可以任何已知的现有技术存储，包括工厂安装，从个人计算机中存取并通过无线下载，例如从通信网络的服务器。所有的这些技术均可从 Nokia®9110 通信装置中得知。

图 6 表示了根据本发明一个实施例的用于台式 PC62 的无线适配卡 61，它可以用作发送器 21 或接收器 24。无线适配卡安装在台式 PC62

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的 PCMCIA 槽中(PCMCIA，个人计算机存储卡国际联盟)。

虽然在上文中所描述的本发明是其在至少部分网络包括无线通信连接的通信网络中的应用，但应强调的是它的应用决不限于这种网络。本发明也可同样适用于网络中各个装置(发送器 21，接收器 24 和网络服务器)之间的物理连接是部分或全部地通过固定线路连接而实现的网络中。

本发明所涉及的不同实施例的服务器和终端如 MMSC、发送器 21 和接收器 24 的操作最好由计算机程序产品控制，它可使这些实体按照本发明的要求来操作。

上文中已经介绍了本发明的特殊执行过程和实施例。对于本领域的技术人员来说，很明显本发明并不限于上述实施例的细节，在不脱离本发明特征的前提下可以在利用等效装置的其它实施例中执行。本发明的范围只由所附的专利权利要求限制。

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先有技术

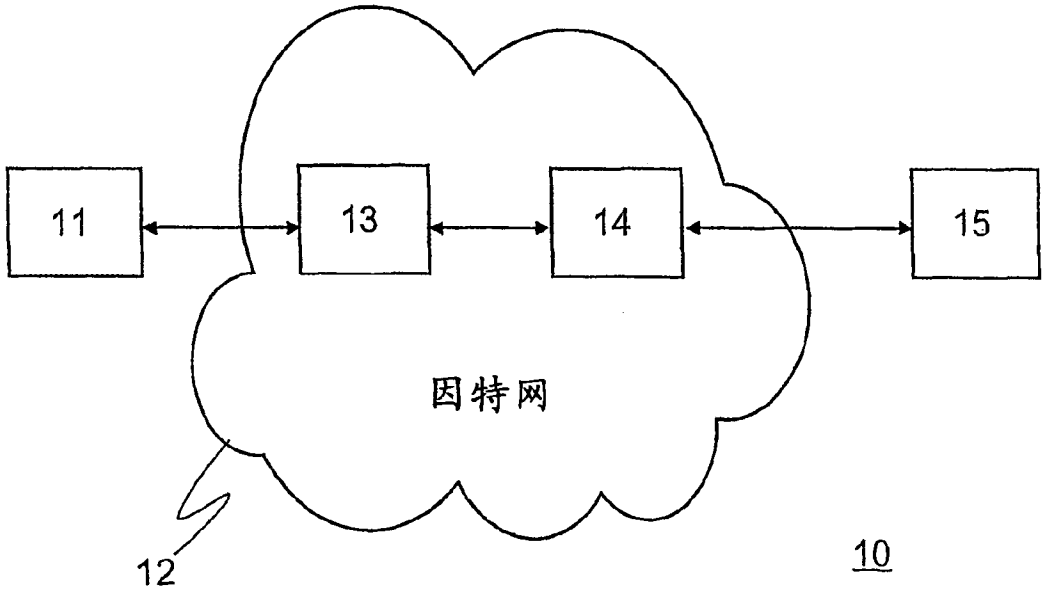


图 1

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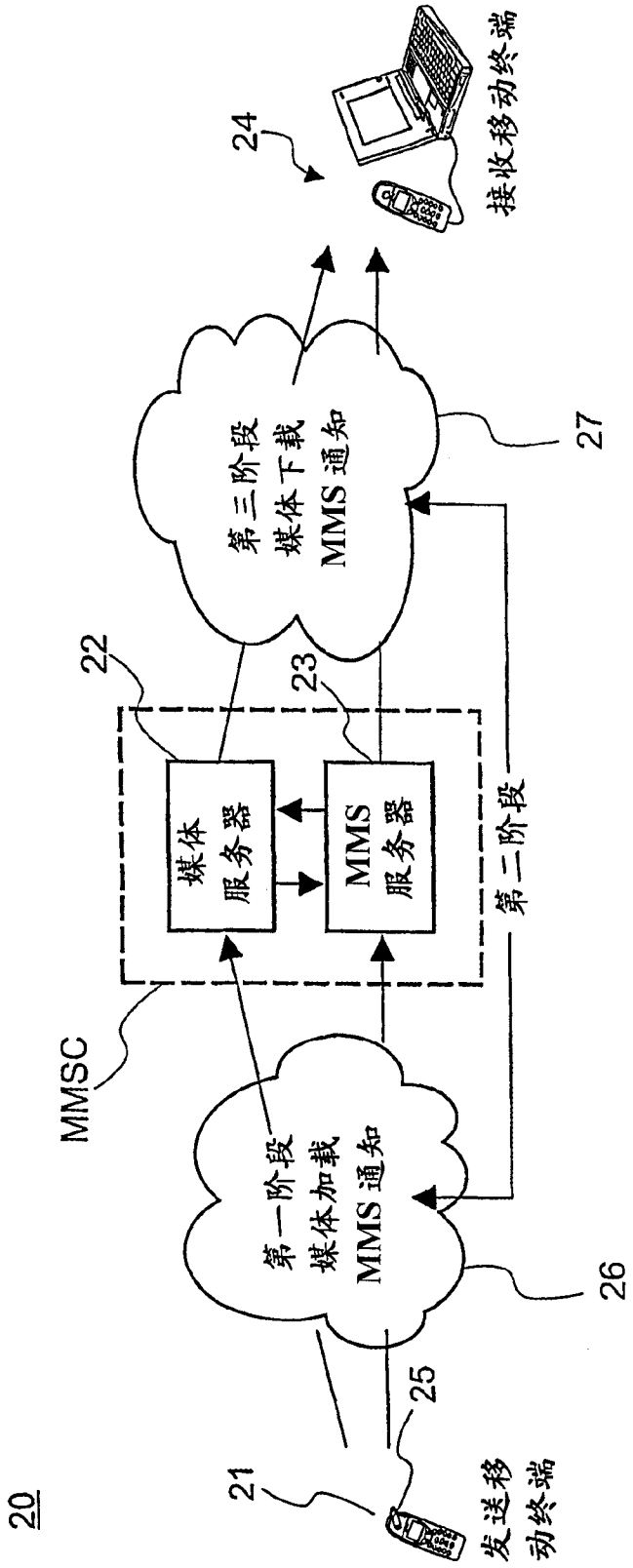


图 2

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图 3

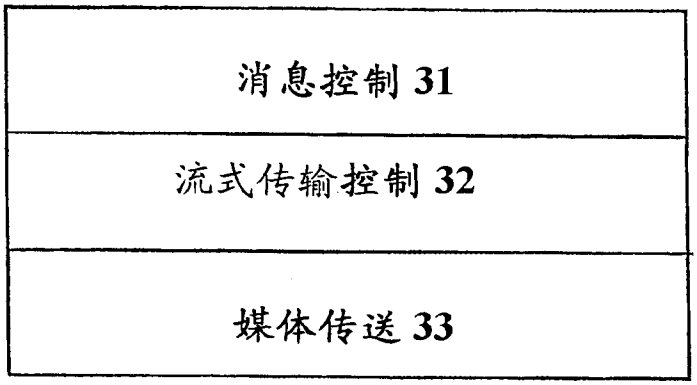
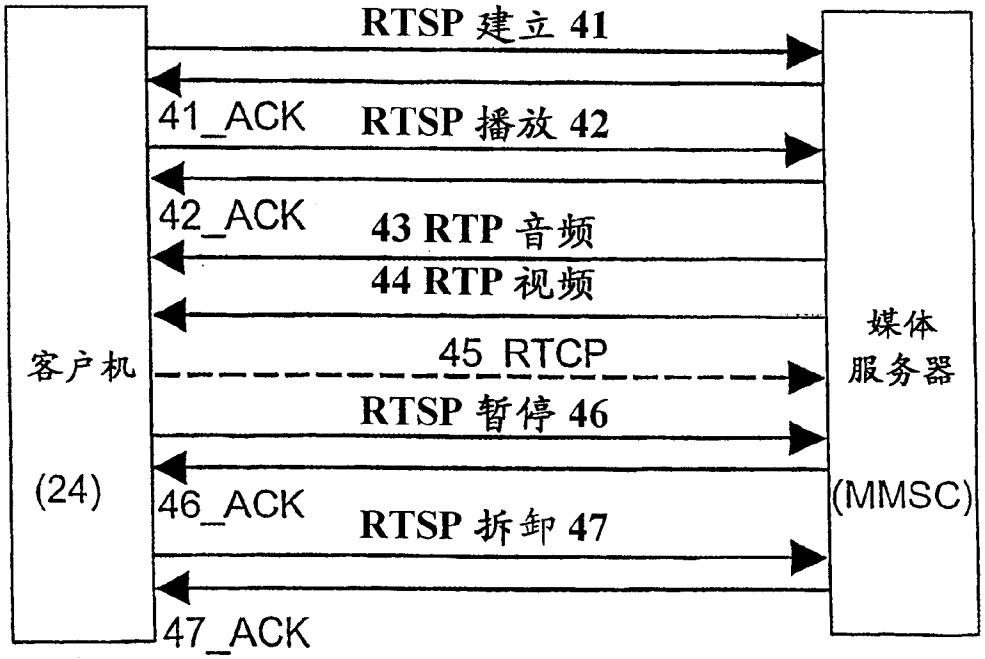


图 4



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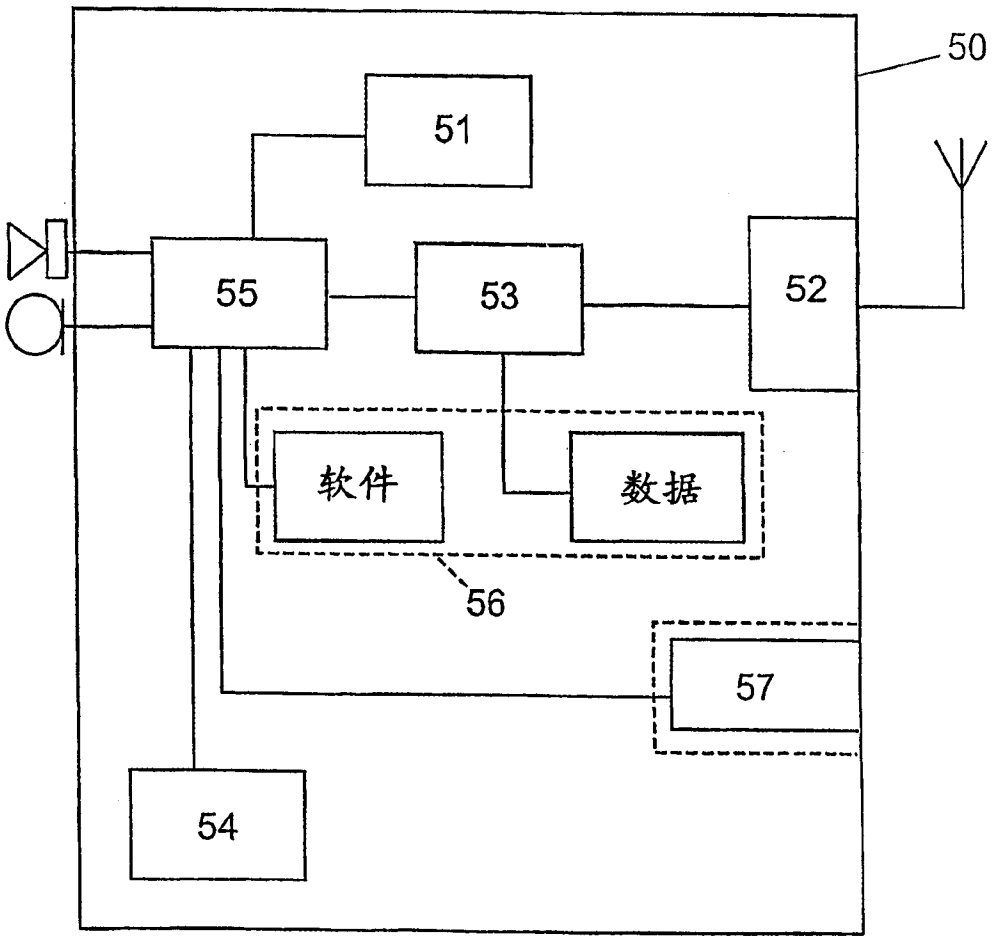


图 5

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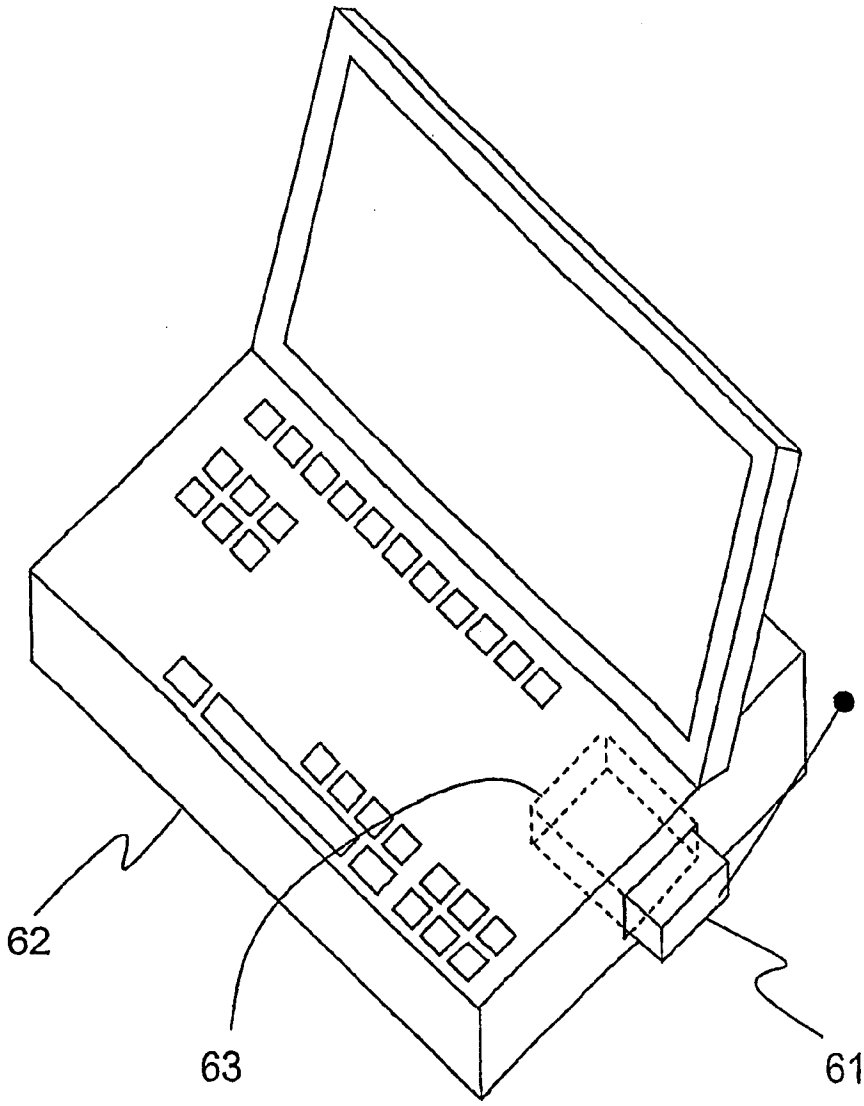


图 6

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PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L65	6	"6523696".pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/27 03:57 PM
L66	2	"20080291905".pn. "20040125757".pn.	(US-PGPUB)	OR	ON	ON	2023/03/06 12:36 PM
L67	1	"20020073205".pn.	(US-PGPUB)	OR	ON	ON	2023/03/06 01:33 PM
L68	1	"20050201537".pn.	(US-PGPUB)	OR	ON	ON	2023/03/06 02:10 PM
L72	1	"9800538".pn.	(USPAT)	OR	ON	ON	2023/03/06 04:10 PM
L73	27	(h04n21/4108).cpc. AND @ad<"20071221" AND gateway AND (session stream)	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2023/03/08 03:34 PM
L74	15191	(h04l69/08).cpc.	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2023/03/08 03:35 PM
L75	1438	(h04l67/1091).cpc.	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2023/03/08 03:35 PM
L76	50043	(h04l65/1069,1006,4076,104,103,1016,608).cpc.	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2023/03/08 03:35 PM
L77	95	(h04l29/08522,06517).cpc.	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2023/03/08 03:35 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

PTO/SB/08a (02-18)
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(Not for submission under 37 CFR 1.99)

Application Number	16413052
Filing Date	2019-05-15
First Named Inventor	Hans Maarten Stokking
Art Unit	3992
Examiner Name	Matthew E. Heneghan
Attorney Docket Number	10-406-CON-REI

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	1	20080291905	A1	2008-11-27	Chakravadhanula et al.	
	2	20040125757	A1	2004-07-01	Mela et al.	

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	1	2007071461	WO	A	2007-06-28	ERICSSON TELEFON AB L M et al.		
	2	1947401	CN	A	2007-04-11	NOKIA CORP	English language machine translation included.	X

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16413052
	Filing Date	2019-05-15
	First Named Inventor	Hans Maarten Stokking
	Art Unit	3992
	Examiner Name	Matthew E. Heneghan
	Attorney Docket Number	10-406-CON-REI

	3	1976346	CN	A	2007-06-06	HUAWEI TECH CO LTD	English language machine translation included.	☒
	4	1393090	CN	A	2003-01-22	NOKIA CORP	English language machine translation included.	☒

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	1	Kahmann, Verena, and Lars Wolf. "Collaborative media streaming in an in-home network." In Proceedings 21st International Conference on Distributed Computing Systems Workshops, pp. 181-186. IEEE, 2001.	
	2	Singh, Kundan, and Henning G. Schulzrinne. "Unified messaging using SIP and RTSP." (2000).	
	3	"Internet Principles and Technology," Edited by Zhao Jinrong, Tsinghua University Press (Beijing Tsinghua University Academic Research Building, Zip Code 100084), 2000, Excerpt.	☒
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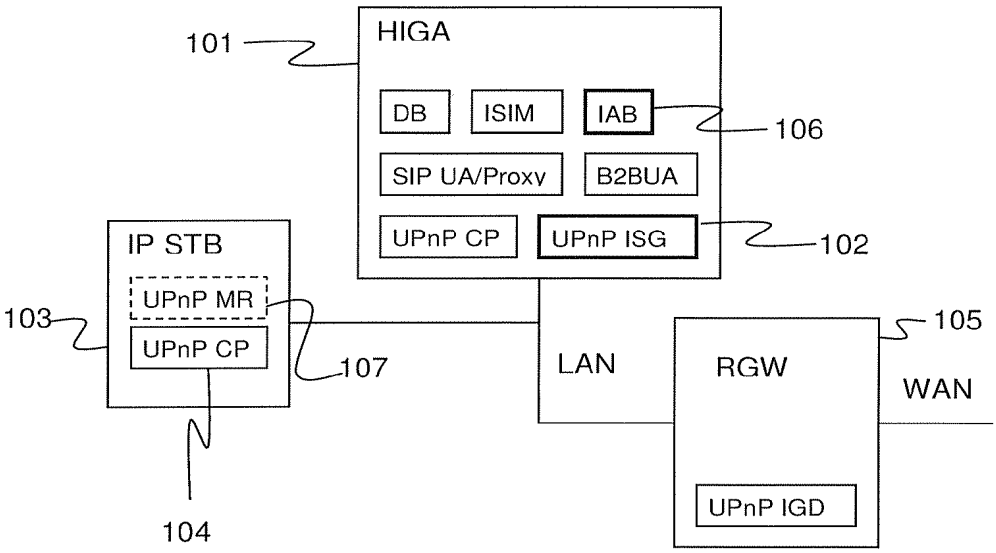
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(54) Title: METHOD FOR ESTABLISHING A UNICAST MEDIA SESSION



(57) Abstract: A method of establishing a unicast media session between a media receiver and a media source via a Network Address Translation function acting on behalf of the media receiver, the media source being within an IP Multimedia Subsystem. The method comprises using a Session Initiation Protocol INVITE method between a media source controller within the IP Multimedia Subsystem and the media receiver to identify the media source to the media receiver. Network Address Translation bindings for the unicast media session are obtained at the media receiver, and a unicast media session between the media receiver and the media source is established using the Network Address Translation bindings.

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METHOD FOR ESTABLISHING A UNICAST MEDIA SESSION

Technical Field

The present invention relates to a method and apparatus for establishing a unicast media session, preferably but not necessarily utilising a set top box (STB).

Background

IP Multimedia (IPMM) services provide a dynamic combination of voice, video, messaging, data, etc. within the same session. By growing the numbers of basic applications and the media that it is possible to combine, the number of services offered to the end users will grow, and the inter-personal communication experience will be enriched. This will lead to a new generation of personalised, rich multimedia communication services, including so-called "combinational IP Multimedia" services, which are considered in more detail below.

IP Multimedia Subsystem (IMS) is the technology defined by the Third Generation Partnership Project (3GPP) to provide IP Multimedia services over 3G mobile communication networks (3GPP TS 23.228 and TS 24.229 Release 5 and Release 6). IMS provides key features to enrich the end-user person-to-person communication experience through the integration and interaction of services. IMS allows new rich person-to-person (client-to-client) as well as person-to-content (client-to-server) communications over an IP-based network. The IMS makes use of the Session Initiation Protocol (SIP) to set up and control calls or sessions between user terminals (or user terminals and web servers). The Session Description Protocol (SDP), carried by SIP signalling, is used to describe and negotiate the media components of the session. Other protocols are used for media transmission and control, such as Real-time Transport Protocol and Real-time Transport Control Protocol (RTP/RTCP), Message Session Relay Protocol (MSRP), Hyper Text Transfer Protocol (HTTP).

The boundaries between the services provided by telecommunication operators, TV operators, and internet service providers are disappearing, and such companies are offering customers all three services (so called "triple play"). For telecommunication operators wishing to offer TV services, a popular choice is to utilize so called IPTV, which delivers a TV service over IP and the customer's broadband connection (e.g. ADSL, VDSL, Public Ethernet, etc.).

With the convergence between IPTV services and the IMS infrastructure, a new range of possibilities opens up for an end user to utilize their TV set. For example, videoconferencing, interactive gaming, personalized advertisement or interactive TV programmes with viewers' feedback are easily achievable using IMS.

In order to be able to view IPTV broadcasts, the end user requires a device that can receive IPTV media, such as a set top box (STB), that may or may not be IMS enabled or have SIP functionality. Means are required to enable the establishment of an RTP media session, such as an IPTV media session, from the IMS network to a device such as a STB for displaying the RTP media content.

Summary

Signalling required to establish a unicast media session, such as Real-time Transport Protocol and Real Time Streaming Protocol signalling, generally includes an exchange of source and destination addresses and ports. A media receiver, such as a Set Top Box, must transmit its IP address and port number when communicating with the source of the unicast media data, in order that the media data is delivered to the correct location, and vice versa. A Network Address Translation (NAT) function, used to translate an IP address, or a Network Address and Port Translator (NAPT), used to translate both the address and the port number, is interposed between the source and the receiver. Where a NAT or NAPT is used, the IP address and port number provided by the media receiver to the media source will not identify the media receiver, and so the unicast media data cannot be delivered to the correct location. This is because the media receiver will include, in the setup signalling, its own local IP address and port number on the media

receiver's side of the NAT function, which is different from the IP address and port number on the media source side of the NAT function.

According to a first aspect of the invention, there is provided a method of establishing a unicast media session between a media receiver and a media source via a Network Address Translation function acting on behalf of the media receiver, the media source being within an IP Multimedia Subsystem, the method comprising:

using a Session Initiation Protocol INVITE method between a media source controller within the IP Multimedia Subsystem and the media receiver to identify the media source to the media receiver;

obtaining, at the media receiver, Network Address Translation bindings for the unicast media session;

establishing a unicast media session between the media receiver and the media source using the Network Address Translation bindings.

In the present specification, the term Network Address Translation is used to cover both a NAT function and a NAPT.

Preferably, the Network Address Translation function is disposed at a Residential Gateway.

The unicast media session may be an IPTV media session.

The unicast media session may be a Real-time Transport Protocol media session, and it may further be established using Real Time Streaming Protocol.

It is preferred that the media receiver comprises a Set Top Box. The media receiver may further comprise a Home IP Multimedia Subsystem Gateway coupled to the Set Top Box.

The method may comprise sending the SIP INVITE message from an IPTV Application Server in response to a request message sent from user equipment to the IPTV Application Server.

Preferably, the method comprises communicating between the media receiver and the media source via an IPTV Application Server.

According to a second aspect of the invention, there is provided a Home IP Multimedia Subsystem Gateway comprising:

a first interface for communicating with a remote network, the remote network comprising a media source;

a second interface for communicating with a non-IP Multimedia Subsystem enabled device;

means to obtain Network Address Translation bindings for a unicast service sent from the media source;

means to provide the Network Address Translation bindings to the non-IP Multimedia Subsystem enabled device.

According to a third aspect of the invention, there is provided a media receiver comprising:

an interface for communicating with a remote network, the remote network comprising a media source;

means to obtain Network Address Translation bindings for a unicast service sent from the media source.

means to establish a unicast media session between the media receiver and a media source using the Network Address Translation bindings.

It is preferred that the means to establish a unicast media session use Real Time Streaming Protocol.

Brief Description of the Drawings

Figure 1A illustrates schematically a Home IMS Gateway comprising an IMS Service Gateway within a home network;

Figure 1B illustrates schematically the control plane and the media plane for the scenario of Figure 1A.

Figure 2 illustrates services and actions of inbound SIP INVITE handling where an STB is located on a home network; and

Figure 3 illustrates signalling to establish a Real-time Transport Protocol session.

Detailed Description

Referring to Figure 1A, a Set Top Box (STB) 103 for receiving IPTV signals is provided within the home. The STB is coupled to a Local Area Network (LAN). The STB 103 of Figure 1 is not IMS-enabled, but is a Universal Plug and Play (UPnP) device. As the STB 103 is not IMS-enabled, it cannot communicate directly with a media source from a remote IMS network.

The STB 103 comprises a UPnP Control Point (CP) 104, which allows the STB 103 to receive and register services available from other devices on the LAN.

The STB 103 further comprises a UPnP Media Renderer (MR) 107, which enables the STB to render media content such as video. The MR 107 provides a set of rendering controls in which the UPnP CP can control how the media content is rendered by the STB, including control for various features such as volume, brightness, sharpness etc.

A Residential Gateway (RGW) 105 is connected between the LAN and an access network. The RGW is a device that is used to connect multiple devices on the LAN to a single cable or DSL line for service access, including e.g. IPTV and Internet access. In order to allow service access to more than one device on the LAN, the RGW 105 has NAT functionality. The STB 103 communicates with remote devices outside the LAN via the RGW 105.

In order to allow the non-IMS enabled STB 103 to communicate with a remote IMS network, a Home IMS Gateway (HIGA) 101 is also disposed in the LAN. The HIGA 101 is disposed in a control plane of the LAN. The HIGA 101 implements a range of functions to assist inter-working between IMS and non-IMS enabled device 103 on the LAN.

The HIGA comprises an IMS Service Gateway (ISG) 102, which is preferably implemented in the same physical box as the HIGA 101. The UPnP ISG device 102 is a logical entity that advertises a set of communication services to a UPnP device 103 on the LAN. The UPnP ISG device 102 introduces the IMS and SIP services. Each of the communication services advertised by the ISG 102 allows non-IMS enabled UPnP devices to establish media connections with remote SIP or IMS clients by invoking the relevant UPnP actions in the ISG 102. Many different types of action are possible, depending on the function of the non-IMS enabled UPnP device. For example, for a STB, an access content action is provided to enable the STB on the LAN to access multimedia content such as IPTV stored in the remote IMS system.

The ISG 102 uses the UPnP protocol to communicate with other devices on the LAN. It advertises its presence on the LAN by sending a discovery advertisement message: Device available -- NOTIFY with ssdp:alive. The message is sent as a multicast over User Datagram Protocol (UDP) to a standard address and port. Control points within the devices on the LAN listen to this port to detect when new capabilities are available on the LAN. To advertise the full extent of its capabilities, the ISG device 102 multicasts a number of discovery messages corresponding to the services available. The UPnP ISG advertises the remote SIP and IMS services and this is registered by the UPnP Control Points of the STB 103.

The UPnP description for the ISG device 102 is partitioned into two parts; the device description describes properties of the HIGA, while the "service description" describes the services available via the HIGA. The "device description" lists basic properties of the HIGA as well as all services it supports.

The HIGA further comprises a UPnP Control Point (CP), a logical entity that controls device points; that is to say, the UPnP CP retrieves a description and list of available services of the UPnP devices on the LAN such as the STB 103 or the RGW 105.

The HIGA also comprises an IMS Address Book (IAB) 106 to facilitate communication between non-IMS enabled devices on the LAN and remote IMS services. The IAB 106 includes a database of addresses.

A SIP User Agent (SIP UA) is also provided which allows the HIGA 101 to work with the Session Initiation Protocol for initiating IMS sessions.

The HIGA 101 may be implemented in a separate physical box or integrated in any other box in the home, e.g. the Residential Gateway (RGW) 105 or the STB 103.

Referring to Figure 1B, there is illustrated schematically the control plane and the media plane for this embodiment. Control plane signalling passes between an IPTV application server and the STB 103 via the HIGA 101 and the RGW 105. The media plane passes between the media source and the STB 103 via the RGW 105.

Referring to Fig. 2, there are illustrated services and actions of inbound SIP INVITE handling in the case of a non-IMS enabled STB 103. It is a precondition that the STB 103 is registered with the HIGA 101, and the HIGA 101 is registered with the IMS core. For incoming SIP INVITE messages establishing an IPTV media session, appropriate UDP ports must be opened in the residential gateway (RGW) 105 for the RTP media. The SIP INVITE in message 1 triggers a sequence of actions (2-5). These actions lead to the creation of a Network Address Translation (NAT) binding for RTP media in the RGW. The sequence of actions is as follows:

1. A SIP invite is received from a remote IMS device. Where the SIP invite is for initiating an IPTV media session, the remote IMS device is an IMS video Application Server.

2. On receipt of the SIP invite at the ISG 102, the Internet Gateway Device (IGD) in the RGW 105 reserves a free UDP port in the IGD.

3. A UPnP action at the STB media renderer 107 is invoked, which passes the port number of the remote IMS device as the source port of media to the RTP stack in the Media Renderer device 107. The UPnP action is preferably included in the AVTransport service. This action informs the RTP stack of the media renderer of the IP address and port of the video source. The syntax of the action is as follows:

IP,port Set_com_transport(IP', port', ID)

IP: IP address of STB on the LAN

IP': IP address of the remote IMS device

Port: Port number on which the STB is ready to receive RTP

Port': Port number on which the remote IMS device is ready to receive RTP

ID: unique identifier of the session which is assigned by the HIGA

4. The RTP stack of the media renderer 107 returns the UDP port on which the client application is ready to receive media.

5. The logic in the UPnP gateway device invokes an Addportmapping action, which creates a NAT binding between the remote media source and the STB. IP-y in Figure 2 refers to the IP address of the remote media source and IP_x refers to the IP address of the STB.

6. The SIP OK message is sent to the remote IMS device, which triggers RTP media to be sent to the media renderer 107 of the STB 103 from the remote IMS client.

7. RTP media is sent to the media renderer 107 of the STB 103 from the remote IMS device, e.g. a Streaming Server (SS).

8. When the user wishes to terminate the IPTV session, termination is initiated via the UPnP Hangup action. A session ID is passed from the STB 103 via an internal message.

9. The UPnP Hangup action triggers a SIP BYE to be sent to the remote IMS device informing the remote IMS device of session termination.

10. The NAT binding for the session is removed.

RTSP session setup

According to a second embodiment, an STB 108 is IMS enabled and need not be

registered with a HIGA. However, means are still required to allow an IPTV session to be established with the STB 108, as signalling between the STB 108 and the media source traverses a NAT function disposed at an RGW . When it is required to establish an RTP media session with an IMS enabled STB 108, in combination with RTSP for media control, the NAT traversal for the IPTV media must be set up. For example, where TV content is ordered from an IPTV Application Server (IPTV AS) using another IMS device such as a mobile phone, the media content can then be played out on a UPnP and IMS enabled media renderer device such as a STB 108.

An STB 108 may use protocols other than SIP to negotiate the media ports. In an IPTV scenario, the media session setup in the STB 108 may be carried out using the RTSP protocol. Figure 3 illustrates signalling to set up a Real-Time Streaming Protocol (RTSP) session. In this scenario, the session is initiated by User Equipment 109, although it will be appreciated that similar signalling can be used for a session initiated either by the remote media source or by the STB 108. The signalling is as follows:

1. The user selects the desired media content and specifies the identity of the play device, in this case the STB 108 on the LAN. A request message is sent from User Equipment 109, such as a mobile telephone, to an IPTV AS via a secure TCP/TLS connection with the IPTV AS.

2. Based on the user selection of a relevant URL, the required video content is requested from a SS.

3. The video URL is returned from the SS to the IPTV AS in form of an RTSP URL.

4. The IPTV AS sends a SIP INVITE message to the SIP stack of the STB 108. The SIP INVITE message contains the RTSP URL and a media description of the video content. The control logic module of the STB 108 enables the coordination of the interaction between the different protocol stacks.

5. A SIP OK response is sent back from the STB 108 to the IPTV AS.

6. The INVITE message received by the SIP stack triggers a message containing the video URL to be sent to the control logic.

7. A request is made to the RTP stack of the STB 108 for the UDP port on which it is ready to receive media.

8. The RTP stack returns a UDP port number for RTP media.

9. A request for the initiation of a UPnP action to get a free IGD UDP port is made.

10. A request for a free UDP port on the WAN side of the IGD is made via UPnP.

11. A free UDP port on the WAN side of the IGD, port y, is returned.

12. The identity of a UDP port y on the IGD, and the RTSP URL to the video are communicated to the RTSP stack.

13. An RTSP SETUP message is sent to the SS indicating the receiving media port. The receiving media port is the negotiated UDP port on the IGD WAN interface. For security reasons, the SS may be inaccessible to end user devices. In this case, all RTSP communication with the end user RTSP client is carried out explicitly with the IPTV AS via a secure channel. The IPTV AS then forwards the RTSP messages to the SS. Messages from the SS to the RTSP client are also sent via the AS.

An alternative to media negotiation using SIP is to use RTSP DESCRIBE. In this instance, the DESCRIBE message is sent prior to message 13, but the control logic must first pass the client port number to the RTSP stack.

14. The SS receives the SETUP message from the RTSP stack and responds with an RSTP OK message.

15. The RTSP OK message, sent from the SS to the RTSP stack, triggers an internal

message to be sent to the control logic specifying the IP address of the SS.

16. The control logic sends an internal message requesting the creation of a NAT binding.

17. A UPnP action Addportmapping creates a NAT binding in the IGD.

18. An internal message is sent from the IGD to the control logic of the STB 108, notifying the control logic that the NAT binding is created.

19. An internal message is sent from the control logic to the RTSP stack informing it of the "play ready" status of the video content. Prior to this message, the play function of the STB is disabled, and becomes enabled on receipt of this internal message.

20. Depending upon the user input, the RTSP stack requests video content to be streamed by sending RSTP play command to the SS.

21. The RTP stream is sent to the prior specified IGD IP address and port where it is translated to the local IP and UDP port of the RTP stack of the STB 108.

The commands in messages 6, 7, 9, 12, 15, 16 and 19 of Fig. 3 are internal messages between the STB control logic and the various protocol stacks of the STB. The control logic provides an event driven mechanism to exchange data between the different protocol stacks.

In an alternative embodiment, the IMS-enabled STB 108 initiates the IPTV session. The user selects the desired video content from, for example, a web portal having a list of URLs, each URL directed to different video content or different IPTV Application Servers. A SIP INVITE is sent from the STB 108 to the IPTV AS, and the IPTV AS returns a SIP OK message. In this embodiment, the SIP OK message rather than the SIP INVITE message contains the SDP and the URL.

It will be apparent to one skilled in the art that various modifications may be made to

the embodiments described above without departing from the scope of the present invention. For example, the ISG is described as being implemented within the HIGA, although it is possible to dispose an ISG at other points in the LAN and not necessarily with the HIGA.

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CLAIMS:

1. A method of establishing a unicast media session between a media receiver and a media source via a Network Address Translation function acting on behalf of the media receiver, the media source being within an IP Multimedia Subsystem, the method comprising:

using a Session Initiation Protocol INVITE method between a media source controller within the IP Multimedia Subsystem and the media receiver to identify the media source to the media receiver;

obtaining, at the media receiver, Network Address Translation bindings for the unicast media session;

establishing a unicast media session between the media receiver and the media source using the Network Address Translation bindings.

2. A method according to claim 1, wherein the Network Address Translation function is disposed at a Residential Gateway.

3. A method according to claim 1 or 2, wherein the unicast media session is an IPTV media session.

4. A method according to claim 1, 2 or 3, wherein the unicast media session is a Real-time Transport Protocol media session.

5. A method according to any one of the preceding claims, wherein the unicast media session is established using Real Time Streaming Protocol.

6. A method according to any of the preceding claims, wherein the media receiver comprises a Set Top Box.

7. A method according to claim 6, wherein the media receiver further comprises a Home IP Multimedia Subsystem Gateway coupled to the Set Top Box.

8. A method according to any of the preceding claims, comprising sending the SIP INVITE message from an IPTV Application Server in response to a request message sent from user equipment to the IPTV Application Server.

9. A method according to any of the preceding claims, comprising communicating between the media receiver and the media source via an IPTV Application Server.

10. A Home IP Multimedia Subsystem Gateway (101) comprising:

a first interface for communicating with a remote network, the remote network comprising a media source;

a second interface for communicating with a media receiver device (103);

means to obtain Network Address Translation bindings for a unicast service sent from the media source;

means to provide the Network Address Translation bindings to the non-IP Multimedia Subsystem enabled device (103).

11. A media receiver (103; 108) comprising:

an interface for communicating with a remote network, the remote network comprising a media source;

means to obtain Network Address Translation bindings for a unicast service sent from the media source.

means to establish a unicast media session between the media receiver and a media source using the Network Address Translation bindings.

12. A media receiver (103; 108) according to claim 11, wherein the means to establish a unicast media session uses Real Time Streaming Protocol.

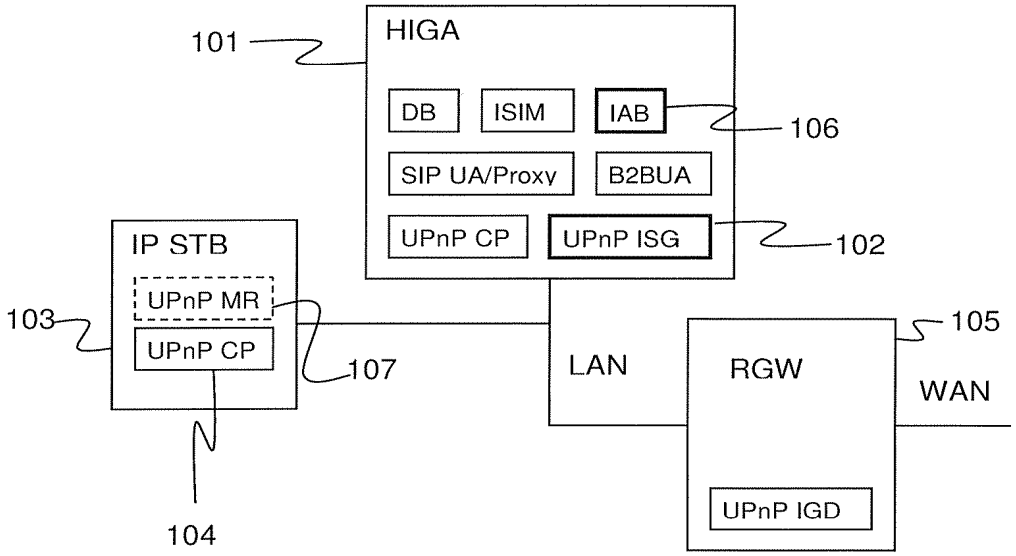


Figure 1A

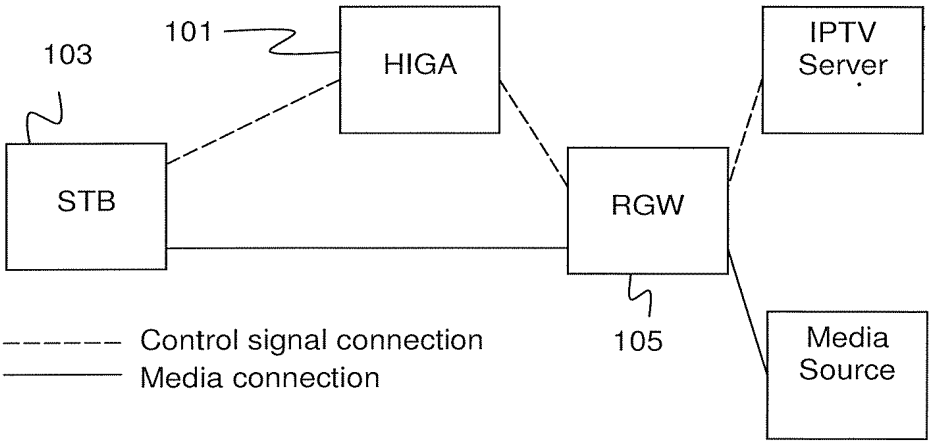


Figure 1B

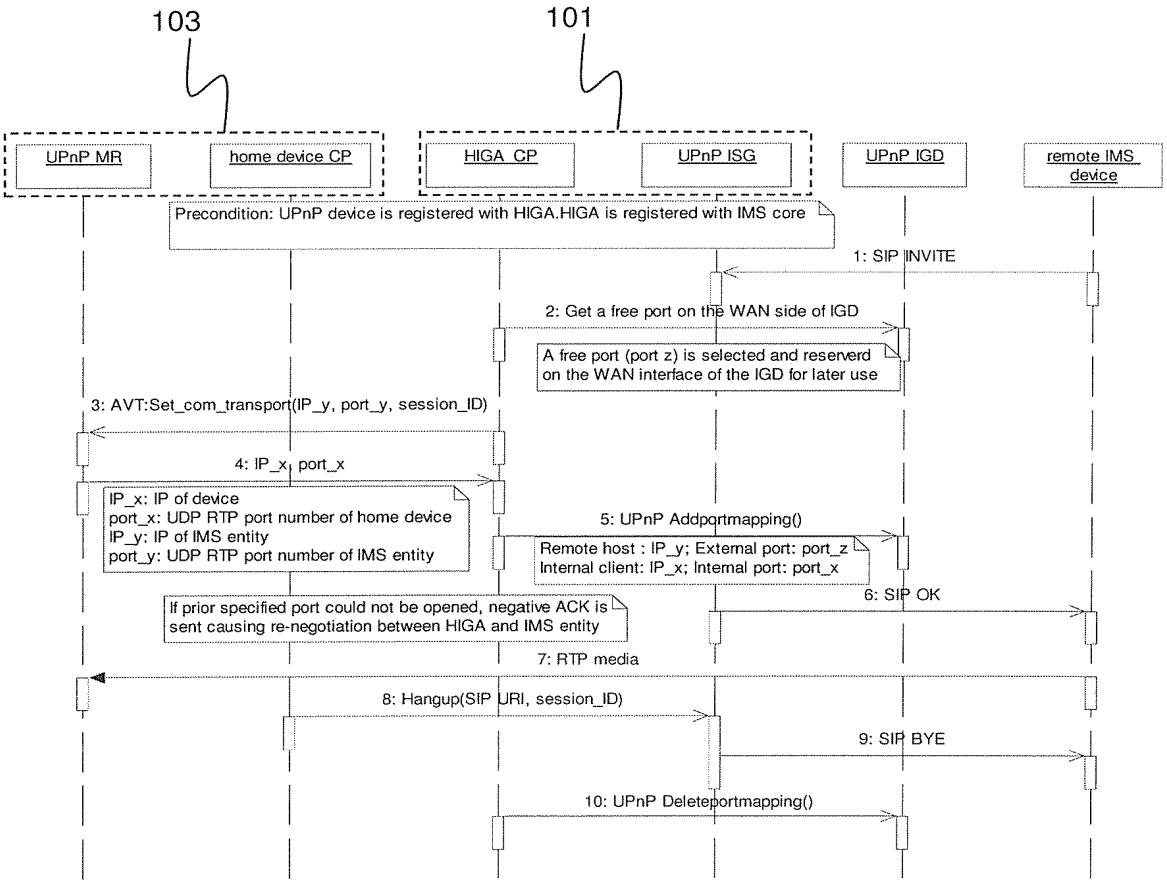

103
101
UPnP MR
home device CP
HIGA_CP
UPnP ISG
UPnP IGD
remote IMS device
Precondition: UPnP device is registered with HIGA.HIGA is registered with IMS core
1: SIP INVITE
2: Get a free port on the WAN side of IGD
A free port (port z) is selected and reserverd on the WAN interface of the IGD for later use
3: AVT:Set_com_transport(IP_y, port_y, session_ID)
4: IP_x, port_x
IP_x: IP of device
port_x: UDP RTP port number of home device
IP_y: IP of IMS entity
port_y: UDP RTP port number of IMS entity
5: UPnP Addportmapping()
Remote host : IP_y; External port: port_z
Internal client: IP_x; Internal port: port_x
6: SIP OK
If prior specified port could not be opened, negative ACK is sent causing re-negotiation between HIGA and IMS entity
7: RTP media
8: Hangup(SIP URI, session_ID)
9: SIP BYE
10: UPnP Deleteportmapping()

Figure 2

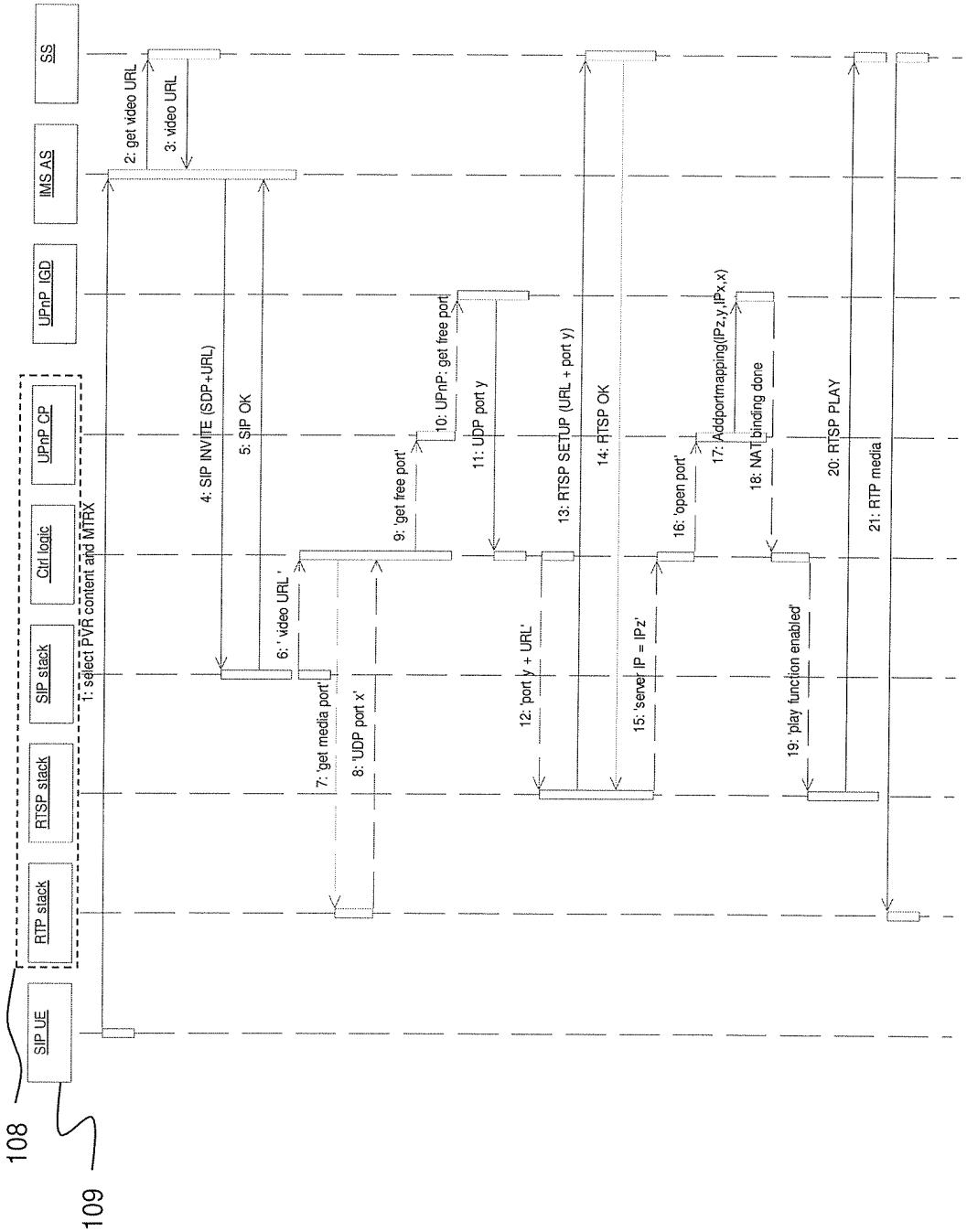

SS
IMS AS
UPnP IGD
UPnP CP
Ctrl logic
SIP stack
RTSP stack
RTP stack
SIP UE
108
109
1: select PVR content and MTRX
2: get video URL
3: video URL
4: SIP INVITE (SDP+URL)
5: SIP OK
6: ' video URL '
7: 'get media port'
8: 'UDP port x'
9: 'get free port'
10: UPnP: get free port
11: UDP port y
12: 'port y + URL'
13: RTSP SETUP (URL + port y)
14: RTSP OK
15: 'server IP = IPz'
16: 'open port'
17: Addportmapping(IPz,y,IPx,x)
18: NAT binding done
19: 'play function enabled'
20: RTSP PLAY
21: RTP media

Figure 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2006/066008

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04L29/06 H04L12/28

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)
H04L

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 practical, search terms used)
EPO-Internal, WPI Data, IBM-TDB, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	MILAN ERBES: "Access Networks Assumptions for TISPAN RACS" ETSI TISPAN, 6 June 2005 (2005-06-06), - 10 June 2005 (2005-06-10) XP002410904 ETSI section 1 section 1.1-1.2	1-12
Y	WO 02/09387 A (NOKIA CORP [FI]; BERTENYI BALAZS [HU]; BAJKO GABOR [HU]; KISS KRISZTIA) 31 January 2002 (2002-01-31) abstract page 1, line 1 - page 9, line 28 page 13, line 29 - page 44, line 26 figures 1-8D	1-12

☐ 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 document but published on or after the international filing date

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

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
8 December 2006	21/12/2006

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Körbler, Günther

1

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

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2006/066008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0209387 A	31-01-2002	AU 6276900 A	05-02-2002

Patents CN1393090A

Method for forming multimedia streaming session

Abstract

A communication method, comprising the steps of a sender 21 sending a message comprising at least one streamable component and information describing it to a communication server MMSC and the communication server responsively sending to a receiver 24 a notification message to notify about the availability of the streamable component. The notification message is a multimedia message comprising the description for the streamable component. The communication server MMSC and the receiver form a streaming session for transferring the streamable component using the information describing the streamable component. The communication server MMSC then streams the streamable component to the receiver 24 in sequential sub-parts in the streaming session. Corresponding to the method, a communication system 20, a communication server MMSC, a communication device 21,24 and computer program products for them are also described.

Classifications

- H04L51/58 Message adaptation for wireless communication

View 6 more classifications

CN1393090A

China

Download PDF Find Prior Art Similar

Other languages: Chinese

Inventor: M·莫斯塔法

Current Assignee : Conversant Wireless Licensing SARL

Worldwide applications

2000 FI 2001 CN KR EP EG SE AT BR AU WO JP US 2002 ZA 2003 JP 2017 US

Application CN01802935A events

	Priority claimed from FI20001741
2001-07-30	Application filed by Nokia Oyj
2003-01-22	Publication of CN1393090A
2009-10-28	Application granted
2009-10-28	Publication of CN1305560C
2021-07-30	Anticipated expiration
Status	Expired - Lifetime

Info: Patent citations (200), Cited by (75), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Claims (20)

Hide Dependent

1. communication means comprises step:

By the communication server received content and the information of describing described content from first terminal;

Send a notification message from the described communication server to second terminal, described notification message notice can receive described content;

It is characterized in that described method also comprises:

Utilize the information of described description content between the described communication server and second terminal, to form the stream transmission dialogue; With

Send described content to described second terminal in described stream transmission session form with the order subdivision from the described communication server.

2. communication means as claimed in claim 1 is characterized in that, described method comprises that also the form of message to separate sends to the described communication server with described content and the information of describing content from described first terminal

3. communication means as claimed in claim 1 or 2 is characterized in that, described method also comprises by the described communication server and sends the information of described description content to described second terminal as the media weight of Multimedia Message.

4. as each described communication means in the above-mentioned claim, it is characterized in that described content comprises the description of at least one non-stream component and at least one streaming component.

5. each described communication means as in the above-mentioned claim is characterized in that, described method also be included in the described communication server transmit described content give described second terminal before described second terminal request obtain described content.

6. as each described communication means in the above-mentioned claim, it is characterized in that described method also is included in described first terminal and produces described content.

7. communication means as claimed in claim 6 is characterized in that, described method also comprises the step of will transmit as a stream in the described content of described first terminal generation in the described communication server.

8. as claim 6 or 7 described communication means, it is characterized in that described method also is included in the generation of described content and finishes the step that sends the information of described description content before.

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9. as each described communication means in the above-mentioned claim, it is characterized in that described method also is included in the step that in the described notification message information of described description content is sent to described second terminal from the described communication server.

10. as each described communication means in the above-mentioned claim, it is characterized in that, the described communication server comprises and is used to the announcement server storing and transmit the content server of described content and be used to receive and transmit described notification message. it is characterized in that described content server and announcement server have physical relation, described physical relation from by single unit, separate units, be distributed in the group that the separate units of diverse geographic location forms and select.

11., it is characterized in that described method also comprises as the part of Multimedia Message service (MMS) carries out described method as each described communication means in the above-mentioned claim.

12. as each described communication means in the above-mentioned claim, it is characterized in that described method also comprises and sends described content multichannel to except that described second terminal at least one other terminal.

13. a communication system (20) comprising:

The a plurality of terminals (21,24) that comprise first terminal (21) and second terminal (24);

The communication server of addressable described a plurality of terminals (MMSC);

Be used for sending content and describing the device (52) of the information of content to the described communication server (MMSC) from described first terminal (21); And

Be used for sending a notification message to the device (23) of described second terminal (24) from the described communication server, described notification message notifies described second terminal (24) can receive described content;

It is characterized in that described system also comprises.

Utilize the information of described description content between the described communication server (MMSC) and second terminal (50), to form the device (22 that stream transmission is talked with, 52);

Described content is sent to the device (22) of described second terminal (24) with the form of order subdivision at described stream transmission session from the described communication server

14. communication system as claimed in claim 13 is characterized in that, described communication system also is included in the device (25) that described first terminal (21) produces described content.

15. as claim 13 or 14 described communication systems, it is characterized in that, the described communication server (MMSC) comprises announcement server (23), in order to the information of the described description content of reception from described first terminal (21), and sends described notification message to described second terminal (24).

16. as each described communication system in the claim 13 to 15, it is characterized in that, the described communication server also comprises content server (22), in order to the described content of reception from described first terminal (21), and sends described content to described second terminal (24).

17. a communication server (MMSC) that is used to serve a plurality of terminals (21,24), the described communication server comprises:

The device of the information of received content and the described content of description from first terminal (21), And

Notification message is sent to the device of second terminal (24), and described notification message notifies described second terminal can receive described content;

It is characterized in that the described communication server (MMSC) also comprises:

Utilize the information of described description content and form the device (22) that stream transmission is talked with described second terminal; And

Described content is sent to the device (22) of described second terminal at described stream transmission session with the form of order subdivision.

18. a computer program comprises:

Computer program code can make the communication server received content and the information of describing described content from first terminal; And

Computer program code can make the described communication server send a notification message to second terminal, and described notification message notifies described second terminal can receive described content;

It is characterized in that described computer program also comprises:

Computer program code can make the described communication server utilize the information of described description content to form the stream transmission dialogue between the described communication server and second terminal; And

Computer program code can make the described communication server send described content to described second terminal with the form of order subdivision at described stream transmission session.

19. a communication equipment (21,24) comprising:

Be used for from the middle device (52) that receives the information of the required describing message of described communication equipment (21,24) of the communication server (MMSC, 23);

It is characterized in that,

Described message comprises the streaming component; And

The information of described describing message comprises the information of describing described streaming component;

Described communication equipment (21,24) also comprises:

Utilize the information of described description streaming component and form the device (52,55) of stream transmission dialogue to receive described streaming component with the described communication server (MMSC); And

From the described communication server with the device (52) of the form received content of order subdivision.

20. a computer program comprises:

Computer program code can make communication equipment receive the information of the required describing message of described communication equipment from the communication server;

It is characterized in that,

Described message comprises the streaming component; And

The information of described describing message comprises the information of describing described streaming component;

Described computer program also comprises:

Computer program code can make described communication equipment form the stream transmission dialogue to receive described streaming component by the information of utilizing described description streaming component with the described communication server; And

Computer program code can make form from the described communication server received content of described communication equipment with the order subdivision.

Description

Form the method for multimedia streaming transmission dialogue

The present invention relates to communication service, especially but do not relate to stream transmission in the Multimedia Message service (MMS) uniquely.

Email (email) is a kind of message passing service, can allow to carry out quick, economic communication with electronic format.Email message can be delivered to all over the world by the internet, and all is free in many cases.In addition, identical email message can send a plurality of recipients to.This technology is called multichannel and transmits.Because the transmission of email message is fully automatically, so email message can be sent in very short time after transmission.Email message can carry computer documents such as document, program file and different media file such as audio or video montages.

The ordinary family user who has personal computer (PC) is unwilling PC for good and all is connected with their e-mail system (for example internet), but wishes that reading the dialogue back at last once email message sets up interim with long-range being connected with the e-mail server of storing message.Utilize this connection and email message fetch program, new email message can be sent to the memory or hard disk of PC from e-mail server, reads or reads behind connection closed when connecting then.Data between PC and the e-mail server transmit utilizes the modulator-demodulator that is connected with PC to carry out usually.

Hereinafter, term " transmitter " is meant the device that is used to transmit the receiver desired data, and " receiver " is meant that being used to receive data and data wishes the device sent to.

Fig. 1 has represented the schematic diagram based on the e-mail system 10 of internet, and it comprises transmitter 11, receiver 15, have the internet 12 of the e-mail server 14 of the e-mail server 13 of transmitter and receiver.

In the internet, email message utilizes some well-known agreements to transmit.Briefly, in a single day email message is finished writing and just is divided into the individual unit that indicates the receiver address, and sends the e-mail server of transmitter to.The e-mail server of transmitter is transmitted to message the e-mail server of receiver by the internet.When next step receiver is connected with the e-mail server of receiver by the internet and checks that by the Email fetch program when whether having received new Email, receiver can be by connecting any email message newly received of (connecting as modulator-demodulator) download.When receiving email message fully, receiver can be shown to the user with it.It should be noted, in each stage transmitting, usually email message is divided into many little packets of information according to the data transfer protocol that is utilized.When receiving, receiver with correct order (if required) combination, is redeveloped into original form with email message with them with all packet collections together, at last email message is shown to the user of receiver.

Above-mentioned Email transport system is very convenient, and can realize that multichannel transmits, but its most suitable reception email message and at user's display message when an opportunity arises, this also is its initial purpose.Therefore, the content of given email message can only finish email message could be accessed after the transmission of receiver.There is not real problem in this concerning the email message of plain text format, but just exists shortcoming for a large amount of medium or content of multimedia (montage), and promptly the receiver user can't download still startup demonstration montage when carrying out.Another shortcoming is in order to receive email message, and receiver must have enough big internal memory to hold whole message.Be in any other network that is formed by dedicated radio link at mobile communications network or part communication line particularly, also having a problem is to receive interim loss that whether long email message can be covered by for example radio or deterioration and take place to interrupt or mistake.Portable terminal also has only limited internal memory to store the email message that receives, and this has further aggravated the problem relevant with hold message in receiver.Can alleviate these problems at least in part by Multimedia Message service (MMS).

MMS is a kind of novel end-to-end message method, is used to have the one-way transmission of the Multimedia Message of text and/or content of multimedia.MMS provides in the possibility that sends Multimedia Message between the mobile subscriber and between mobile subscriber and the internet.This is the solution of having reached common understanding of carrying out the MMS in the 3G (Third Generation) Mobile network.V.3.0.1 in " Multimedia Message service (MMS), functional description, the second level (version in 1999) " the current definite feature of MMS that is proposed has been described in third generation collaborative project (3GPP) technical specification 23.140.The MMS that proposes in 3GPP 23.140 utilizes store and forward mode to transmit Multimedia Message.Multimedia Message is built into the address information of media content, description content information necessary and the desirable receiver of identification Multimedia Message is packaged together.Then Multimedia Message is sent to MMS center MMSC, the latter can receive this Multimedia Message to the receiver notice again.Receiving terminal is integrally downloaded Multimedia Message, in case download finish and be stored in the receiving terminal after just be shown to the user.

Though what it should be understood that the common description of term " Multimedia Message " is the message that contains the content that surpasses a type, in this used, this term extended to the message that only contains a kind of medium type.

Current specified MMS has receiving terminal must be stored Multimedia Message before Multimedia Message is shown to the user shortcoming.Therefore, the memory size of receiving terminal has determined the upper limit of the Multimedia Message size that can download.International Patent Application WO 99/166746 has solved this problem by when whole information is not suitable for the memory of receiving terminal message being divided into a plurality of sub-message (fragment).This a little message is very little, is enough to make receiving terminal each sub-message entirely can be downloaded separately.In this case, receiving terminal is at first

downloaded the first sub-message.After having downloaded the first sub-message fully, receiving terminal can show the first sub-message.Receiving terminal can be downloaded the second sub-message and show the second sub-message after having shown the first sub-message.Download each sub-message and show each sub-message individually.The size of sub-message is decided by the memory size of receiving terminal, and it must be little of depositing in the memory.

Except MMS, in the internet, also utilize the stream transmission technology to come to transmit information by fixed line.Term " stream transmission " is generally used for being described in and shows this or these Media Stream when Media Stream sends the client to by data network in a continuous manner, for example audio or video stream, or the combination of various flows." stream " typically refers to the data flow that can make receiver show some continuous datas such as motion picture, sound or music.In typical video flowing, per second transmits 10 to 20 two field pictures.In fact, stream transmission can be live (in real time), or carry out with the request pattern.Shown in its title like that, " live stream transmission " described from live source, as by forming Media Stream the digital image stream that video camera produced, and " stream transmission of request formula " described from for example be stored in the file the server and formed Media Stream.Stream transmission also relates to sets up the stream transmission dialogue, and information flow sends the client to during this period.

Stream transmission has two crucial functions, i.e stream transmission control and media delivery.Stream transmission control relates to that utilization has been consulted or pre-configured parameter value group is set up, managed and stop the stream transmission dialogue.Media delivery relates to utilizes the host-host protocol of having agreed or having consulted to come transmission medium in the process of setting up dialogue.For example, have the agreement of reaching extensive common recognition in the internet, the function of stream transmission control and media delivery can be provided, these agreements can be as host-host protocol in stream transmission is used.

Though stream transmission is widely used in the internet, but still need adjust it, in mobile communications network, use being suitable for.It should be understood that because portable terminal only has limited storage capacity (memory) usually, therefore in the mobile network, wish to use stream transmission.Yet present mobile communications network is not supported stream transmission, and its reason is as described below.

Stream transmission as the single packaging body that includes media content, message semantic definition and address information that proposed in the current MMS standard and media content is incompatible.In order to set up the dialogue of stream transmission, receiving terminal need be known the certain information relevant with media content in advance.These information include but not limited to be included in the medium type in the Multimedia Message, the coded system of medium, and the suitable host-host protocol that can be used to media content download.Because current MMS standard need be described the information and the Multimedia Message itself of media content and be packaged together, receiving terminal can't obtain the priori about the media content attribute, thereby can't set up any type of stream transmission dialogue.Therefore, according to present MMS standard, whole multimedia message must be downloaded in the receiving terminal to extract the details of content of multimedia.Have only after this and could play any media content, for example the user of receiving terminal is given in the video and/or audio montage.Because multimedia clips has a large amount of positions usually, thereby receiving terminal such as the relatively large memory of mobile radio station needs fully receive montage, and this has just limited the use of current MMS.Multimedia Message needs fully to download before demonstration, for example when Multimedia Message is very big, when perhaps the data transmission rate of Lian Jieing is very low, has also produced significant delay under certain condition.

What it is again emphasized that is can not be promoted to transmit as a stream in this system by the addressing scheme that current MMS standard is advised.Current MMS can be considered the system of " towards transmitter " in other words, the transmitter decision sends to receiver with which kind of media content, media content is encapsulated in the Multimedia Message and with it sends required receiver to.On the other hand, stream transmission is more prone to " towards receiver ".Transmit dialogue as a stream for setting up, need for example form stream transmission between the network-based services device and connect at receiver and transmitter usually, in case set up necessary connection, just streaming transmission from server of content.Therefore, the foundation of stream transmission dialogue needs receiver to know the position of media content, but does not need directly addressing receiver of requirement media content.

Invented a kind of new solution now, it can be avoided or alleviate the problems of the prior art at least.

According to a first aspect of the invention, provide a kind of communication means, comprised step:

By the communication server received content and the information of describing this content from first terminal, And

Send a notification message from the communication server to second terminal, notification message notice can received content;

It is characterized in that described method also comprises:

Utilize the information of describing content between the communication server and second terminal, to form the stream transmission dialogue; And

From the communication server, send content to second terminal at the stream transmission session with the form of order subdivision.

Content fully is received owing to utilize the receiver of second terminal not need by the time, therefore sends content to second terminal with the form that flows and can allow content is carried out fast access.

The information of content and description content preferably sends to the communication server with the form of message of separating from first terminal.This just allows to send dividually, for example content is sent to a communication server and notification message is sent to receiver.

The information of describing content is preferably in the notification message and sends to second terminal from the communication server.

Described method comprises also that preferably the information that will describe content by the communication server sends to second terminal as the media weight of Multimedia Message.

Transmission allows to utilize existing multi-media messaging system as the description of the streaming component of media weight in the minor variations scope.It also allows to embed in same Multimedia Message and surpasses a media weight, and some of them or all media weights can be the descriptions of streaming component.

Multimedia Message preferably includes the description of at least one non-stream component and at least one streaming component.

Communication means preferably also is included in the stream transmission session shows the content that is received in second end with the form of stream step.Second terminal can start and displaying contents at once, and can carry out certain operation (reportedly sending as time-out or terminating number) during transmitting.

Described method preferably also is included in second end decision at received content whether sometime, and if the decision received content just form the step of stream transmission dialogue.

The communication server preferably includes and is used to the announcement server storing and transmit the content server of content and be used to receive and transmit notice, wherein content server and announcement server have physical relation, this physical relation from by single unit, separate units, be distributed in the

group that the separate units of diverse geographic location forms and select.

Communication means preferably also is included in the step that first end produces content.The content that produces in first end preferably flows to content server, and content be transmitted in produce content during carry out.Thereby, with content first end fully produce or most of the generation after flow to content server again and compare, the user just can earlier obtain content.

When adopting the generation of flowing content, the information of description content is preferably in the content generation and finishes transmission before, and therefore second terminal can begin received content before the content generation is finished.

Stream transmission session between the communication server and second terminal, receiver preferably can be issued to stop ordering and stop talking with.Stream transmission dialogue preferably response stops order and stops.

Notification message preferably includes the desired information of second terminal, so that form the stream transmission dialogue with content server.

Described method is preferably carried out as the part of Multimedia Message service (MMS).

Described method preferably also is included in the step that at least one other stream transmission dialogue the content multichannel is sent at least one other terminal except that second terminal.

In the embodiment with a plurality of stream transmission dialogues, each stream transmission dialogue can form with other stream transmission dialogue relatively independently, and therefore dialogue can begin or finish in different time or identical time.Each dialogue preferably can respond each terminal and be independent of other stream transmission dialogue and stop.

A kind of communication system is provided according to a second aspect of the invention, has comprised:

A plurality of terminals with first terminal and second terminal,

The communication server of addressable a plurality of terminals;

Be used for sending content and describing the device of the information of content to the communication server from first terminal; And

Be used for sending a notification message to the device of second terminal from the communication server;

It is characterized in that described system also comprises:

Utilize the information of describing content between the communication server and second terminal, to form the device of stream transmission dialogue; And

Content is sent to the device of second terminal with the form of order subdivision at the stream transmission session from the communication server.

Described system preferably also comprises the device that can produce content in first end.

Described system preferably also comprises the device that can show the content that is received at the stream transmission session in second end with the form of stream.

A kind of communication server that is used to serve a plurality of terminals is provided according to a third aspect of the invention we, and the described communication server comprises:

The device of the information of received content and description content from first terminal; And

Notification message is sent to the device of second terminal, and notification message notifies second terminal can received content;

It is characterized in that described server also comprises:

Utilize the information and second terminal of describing content to form the device that stream transmission is talked with, And

Content is sent to the device of second terminal at the stream transmission session with the form of order subdivision.

A kind of computer program that provides according to a forth aspect of the invention comprises:

Computer program code can make the communication server received content and the information of describing content from first terminal; And

Computer program code can make the communication server that notification message is sent to second terminal, and notification message notifies second terminal can received content;

It is characterized in that described computer program also comprises.

Computer program code, the information that can make communication server utilization describe content form the stream transmission dialogue between the communication server and second terminal; And

Computer program code can make the communication server send content to second terminal with the form of order subdivision at the stream transmission session.

A kind of communication equipment is provided according to a fifth aspect of the invention, and it comprises:

Be used for from the device of the information of the required describing message of communication server received communication equipment.

It is characterized in that,

Described message comprises the streaming component;

The information of describing message comprises the information of describing the streaming component; And

Described communication equipment also comprises:

Utilize the data of describing the streaming component and form the stream transmission dialogue, so that receive the device of streaming component with the communication server; And

From the communication server with the device of the form received content of order subdivision.

A kind of computer program is provided according to a sixth aspect of the invention, has comprised:

Computer program code can make the information of the required describing message of communication equipment received communication equipment from the communication server;

It is characterized in that,

Described message comprises the streaming component;

The information of describing message comprises the information of describing the streaming component; And

Described computer program also comprises:

Computer program code can make communication equipment form the stream transmission dialogue by utilizing the information of describing the streaming component with the communication server, so that receive the streaming component; And

Computer program code can make form from the communication server received content of communication equipment with the order subdivision.

Communication equipment is preferably Wireless Telecom Equipment, and mobile phone preferably.In another embodiment, Wireless Telecom Equipment is a wireless communication adapter, can provide radio communication function to external equipment such as Desktop PC.

Provide a kind of communication equipment used method according to a seventh aspect of the invention, described method comprises step:

The information of the required describing message of received communication equipment from the communication server;

It is characterized in that,

Described message comprises the streaming component,

The information of describing message comprises the information of describing the streaming component; And

Described method also comprises step:

By utilizing the information And Communication server of describing the streaming component to form the stream transmission dialogue, so that receive the streaming component; And

Show the streaming component at the stream transmission session.

Embodiment according to an aspect of the present invention also can be applicable to each others of the present invention Briefly, repeatedly each aspect with invention is relevant for all embodiment.Those skilled in the art can understand the advantage of each others and embodiment on the basis of the advantage of first aspect present invention and embodiment.

The present invention will and be described with reference to the accompanying drawings by example, wherein:

Fig. 1 is based on the schematic diagram of the e-mail system of internet;

Fig. 2 is the figure of communication system according to the preferred embodiment of the invention;

Fig. 3 has represented the master agreement layer that the stream data of system shown in Figure 2 transmits;

Fig. 4 has represented according to a preferred embodiment of the invention, sends the structure of message during the stream data between receiver and media server transmits.

Fig. 5 has represented according to a preferred embodiment of the invention, is incorporated into the block diagram of the mobile communication terminal of cellular radio;

Fig. 6 has represented to be used for according to another embodiment of the present invention the wireless adapter card of Desktop PC.

Hereinbefore by the agency of Fig. 1.

Then will summarize the preferred embodiments of the present invention tout court, and then at length be introduced with reference to figs. 2 to 6.

According to a preferred embodiment of the invention, stream transmission is incorporated in the Multimedia Message service (MMS).Need to carry out the process of three phases in this regard.In the phase I (stage 1), transmitter (transmission terminal) is with Multimedia Message, or more precisely media content sends medium (stream transmission) server to.In second stage (stage 2), one or more receivers (receiving terminal) are notified can to receive the media content that is transmitted.In the phase III (stage 3), media content is transmitted to receiver.The notice of carrying out in the stage 2 is preferably undertaken by through multimedia message server (MMS) notification message being sent to receiver by transmitter.In general, MMS server storage notification message is transmitted to receiver with it then.Get nowhere if transmit, it will send the notification message of being stored again later.

Stream transmission be preferably in first and the phase III in carry out, promptly when the upload media content arrives medium (stream transmission) server and from medium (stream transmission) server during media content download.It should be noted that the stream transmission of uploading the stage in (stage 1) is not the principal character of the inventive method.Yet, in stage 1 and 3, utilize stream transmission can reduce from transmitter beginning transfers media content and in receiver, begin to transmit as a stream between delay.It also has the effect that can reduce the required memory capacity of medium (stream transmission) server, and can realize in MMS in real time effectively or approaching real-time stream transmission.

The stage 2 of this method can be considered the message control stage, and it relates to by MMS server Multimedia Message is transmitted to receiver (the target receiver of Multimedia Message) with the information relevant with stream transmission.Stage 1 and 2 can sequentially or substantially side by side carry out, and the stage 3 can automatically carry out when receiver receives notification message, or later carries out according to receiver user's wish again.Therefore, the invention provides the flexibility that receiver can be play the streaming video content at any time.Preferred embodiment not the size of media content or when multichannel transmits the quantitative aspects of receiver limited.Preferred embodiment is based on storage-retransmission method, so it meets other MMS method.This media content that just makes any not energy fluidizing or type be unsuitable for transmitting as a stream can be downloaded in the receiver by the traditional approach as appointment in the current MMS standard.

The enforcement that an advantage of the invention is the stream transmission function can strengthen the MMS advised in many side, and is especially very big or carrying out multichannel when transmitting at media content Since the storage-retransmission method of in MMS, transmitting as a stream make receiver can determine fully neatly whether and when to receive with play multimedia message in media content, therefore this method is effectively and desirable.The present invention also provides the stream transmission function in the framework of the MMS that is advised, so it is compatible fully with existing MMS standard.

Hereinafter the embodiments of the invention of Miao Shuing will be summarized in the key step of transmitting as a stream among the MMS.

Fig. 2 is the figure of communication system 20 according to the preferred embodiment of the invention.System 20 comprises transmitter 21, has the MMS center (MMSC) of media server 22 and MMS server 23, and receiver 24.MMSC also can be regarded as the communication server.

In the example of this Multimedia Message stream storage means, transmitter 21 is a portable terminal, and video camera 25 and the microphone (not shown) that can generate the media content (audio/video clips) that will send receiver 24 to are housed.Receiver 24 is a portable terminal, but the equipment of appropriate display software and display media content (audio/video clips) is housed.Usually, transmitter 21 is similar equipment with receiver 24, why one of them another is a receiver 24 for transmitter 21, for no other reason than that their role is transmit leg and recipient's (transmitter and receiver) The three phases of the inventive method will be described in detail below.

In the stage 1, set up the stream transmission dialogue between transmitter 21 and medium (stream transmission) server 22,22 beginnings of medium (stream transmission) server are at the precalculated position storing media content.This stage can be considered medium and uploads the stage.

In the stage 2, transmitter 21 sends by MMS server 23 and is notified to receiver 24, the relevent stored media content of notice Notice is included in and sets up the required demonstration descriptor of another stream transmission dialogue between receiver 24 and the media server 22.Show that descriptor includes but not limited to following data: the network address of media server, The particular content of access mechanism can regain media content by access mechanism from media server 22; The medium type that to transmit as a stream; Be used for the coding method that media content is encoded and be used for the indication of the host-host protocol of downloads of media.

In the stage 3, receiver 24 is set up the stream transmission dialogue with media server 22 based on the information in the notification message that is received, and receiver 24 begins to download and playing media.This stage can be considered the medium download phase.Media content is downloaded according to the order of content subdivision, a time period of each subdivision representative stream transmission dialogue.The content subdivision can be divided into data packets, and perhaps a subdivision can comprise more than a data packets, and this depends on the size of the payment load of the type of coding of media content and data packets.

Media server 22 and MMS server 23 may be incorporated in together, perhaps remain different entities in network, depend on their the selected implementation of service provider of control.Media server 22 for example can be arranged in mobile communications network or be arranged in the internet, and providing that the control of service provider serves in the not responsible mobile communications network down can be provided.

When all transmitting as a stream in stage 1 and stage 3, (notice) stage 2 carried out during (medium are uploaded) stage 1, and (medium download) stage 3 also can begin during the stage 1.Transmitter 21 continues media content is sent to media server 22, and media server 22 sends to receiver 24 with the part of receiving previously in the media content simultaneously.Receiver begins (and continuation) playing media content, and the time of stream transmission process, data transfer delay and stage 3 beginnings is depended in its total delay.If the stage 3 is not automatically to begin but in prompting with when receiving user's the permission of receiver 24, so total delay just gets started the delay in stage 3 usually when receiving notice at receiver 24.

In another embodiment, media content has been stored in the media server 22, and transmitter 21 is known the demonstration descriptor of media content.Can omit the stage 1 in this case.As mentioned above, the stream transmission of media content is unimportant concerning the stage 1.For example, the non-stream transmission method in stage 1 can be used in combination with the media content that commercial content provides device to provide, and commercial content provides device for example to provide device for the news content that is arranged in communication network such as internet.Content provides device to utilize non-stream to be transmitted in sending in the IP connection and updates stored in media content in the media server 22, and the potential receiver of notification message notice media content that utilizes the stage 2 according to the present invention is about the message of interested new montage.The recipient of notification message such as user can provide device to subscribe to specific content.On the basis of notification message, in each time easily, whether each recipient's decision forms the stream transmission dialogue with media server 22, so that the new media content that provides device to be provided by certain content to be provided.This has also represented a kind of example of multiple channel sending method, and it utilizes multi-media messaging system according to the present invention to transmit as a stream.

According to another embodiment of the present invention, show that descriptor can be stored in the server except that MMS server 23 or media server 22, as Email or Web server.In this embodiment, the particular server that shows descriptor has been stored in the notification message identification that sends to receiver 24, and with access mechanism (HTTP GET, WSP GET, IMAP4, POP3, RSTP DESCRIBE) regain the demonstration descriptor from that position.Then, server 24 utilizes the access mechanism of appointment to regain the demonstration descriptor from the server that notification message is discerned.Then, the demonstration descriptor Boot Server 24 of gained calls the stage 3 of the method, to regain and to play the media content of being stored.If being used to store the server that shows descriptor is MMS server 23, current MMS method can be used for directly regaining the demonstration descriptor.In this case, 23 MMS notice is carried the demonstration descriptor from transmitter 21 to MMS server, shows that descriptor is stored in the MMS server 23.Then, show that from having stored the server described has carried position. server address and other required information that the demonstration of being stored is described to the notice of receiver 24.At last, receiver 24 is followed MMS and regain the demonstration description from MMS server 23.

Therefore it should be noted, in some cases, transmitter 21 send to MMS server 23 notification message the information content can to send to the information content of receiver 24 different with MMS server 23.

According to a preferred embodiment of the invention, if transmitter 21 and receiver 24 are under the management of different interconnective MMS servers (being that they have different " service " multimedia servers), notification message can transmit in the connection between MMS server.For any end-to-end notice, the quantity of the server that can link together between the service MMS server is unrestricted.

In internet domain, exist the existing protocol that is used to transmit as a stream control and media delivery.Therefore the stage 1 and 3 can carry out based on these existing protocols.in this mode, can guarantee also and the interworking of internet that by method provided by the invention this also is a free-revving engine of current MMS standard.Therefore stage 2 meets existing MMS standard, can provide the back compatible between the mechanism with previous suggestion, with the media content of download non-stream.

To be used to finish some practical approaches of the different phase of the preferred embodiment of the present invention by example explanation below.

Real-time streaming host-host protocol (RTSP) is a client-server stream transmission control protocol, can realize the controllable transmission of streamed multimedia data on IP network.It is the agreement of an application layer, can use with transmission control protocol (TCP) or user datagram protocol (UDP).RTSP provides use RTP

(RTP)/UDP or any other low level protocol scope to be used for media delivery.RTSP comprises the method/instruction of a cover control streaming audio and/or video.In this regard useful method/instruction is OPTIONS, DESCRIBE, ANNOUNCE, SETUP, PLAY, PAUSE, TEARDOWN, REDIRECT and RECORD Medium are uploaded and are downloaded and can utilize SETUP, PLAY, and RECORD, PAUSE and TEARDOWN carry out.

HTTP(Hypertext Transport Protocol) also can be used for by TCP is realized and control uploading and downloading of media content of the present invention as host-host protocol.HTTP has method/instruction PUT and the GET corresponding to RECORD among the RTSP and PLAY, can be used for the uploading of medium (stage 1) and downloads (stage 3).

UDP is the host-host protocol of connectionless lightweight, and the communication of shorter stand-by period can be provided.RTP specially designs for real time communication, carries out RTP and makes it that the time mark and the serial number of the data packets that is positioned at the UDP upper strata can be provided.Multichannel transmits and can utilize RTP to carry out.RTP also is designed for assist control agreement RTCP (real time control protocol) and is used in combination, with the quality that obtains relevant data transmission and the feedback of the participant information in the ongoing dialogue.RTP and RTCP can be provided for carrying required function of real time content and controlling mechanism together, therefore can realize the stream transmission of media content, thereby can be used in combination with the present invention.

TCP is connection-oriented host-host protocol.Compare with UDP, it with increase the stand-by period and more multitube reason expense be cost guarantee data packets accurately and reception in proper order.In TCP, can not use multichannel to transmit, if but buffer time at initial stage is inessential and it is shorter relatively to carry out the media clip of streamingization, and TCP can be used for stream transmission and use.

Upper strata in stream transmission control and media transport layer need have the message controlled function, so that stream transmission is incorporated among the MMS.Fig. 3 has represented the master agreement layer according to the stream data transmission system of Fig. 2.Give information comprehensive control of sending function of message key-course 31.For example in transmitter 21, message key-course 31 is responsible for media content is assembled in the Multimedia Message, and forms the notification of information message that includes the description media content, and notification message is sent to required receiver 24 then again.In receiver 24, message key-course 31 is explained received notification message, extracts the information relevant with the position of the media content of will transmit as a stream and forms stream transmission dialogue information necessary, to regain media content.Message key-course 31 also is responsible for the transmission and the reception of any media content that can not transmit as a stream and/or be unsuitable for transmitting as a stream according to existing MMS of control.

Stream transmission layer 32 is by 31 controls of message key-course.It the rule that the information that provides according to message key-course 31 or each medium type be scheduled to is provided is come the various media contents that will transmit as a stream are formed the stream transmission dialogue.It also is responsible in case set up the just stream transmission of control/adjusting media content of stream transmission dialogue.In transmitter 21, stream transmission layer 32 is responsible for the media content streaming is uploaded in the media server 22, and on the contrary, in receiver 24, it is responsible for control from media server 22 streaming media content downloads.Perhaps, can provide the stream transmission controlled function under these circumstances in media server 22, promptly transmit as a stream in stage 1 and 3, making can provide between transmitter 21 and receiver 24 in real time or near the stream transmission of real-time media content.Media transport layer 33 utilizes suitable host-host protocol to come the actual transmissions of deal with data.Can select for different media types pre-determines agreement., be prompted to media transport layer 33 by message key-course and stream transmission key-course 31,32 perhaps according to the information in the notification message.In a preferred embodiment, the data transmission channel notified according to media transport layer 33 of media streaming control adapts to stream transmission.

Fig. 4 has represented according to a preferred embodiment of the invention, the structure of the different control messages that send between receiver 24 and the MMSC (or media server 22) during the streaming video content is downloaded.It has shown when utilizing RTP/RTCP as host-host protocol, utilizes the information flow of RTSP dialogue playing media montage in receiver 24.This has just provided an example of the method that is used in downloads of media montage in the stage 3 of the present invention.Below explanation is sent to the control messages of receiver 24.

Receiver 24 requires to obtain its notified media content in the stage 2.The RTSP that receiver 24 will be used to set up stream transmission sets up information (41) and sends to MMSC, and receives corresponding confirm (41ACK).Receiver 24 sends to MMSC with RTSP play instruction message (42) then, and receives corresponding affirmation (42 ACK).MMSC responds this play instruction, begins RTP audio frequency (43) and RTP video (44) content are sent to receiver 24 according to the Multimedia Message that is sent.Receiver 24 can send media content by RTCP message (45) control MMSC.In case the user of receiver 24 wishes the stream transmission that suspends content and download that he or she can ask to suspend stream transmission, in response, receiver sends to MMSC with RTSP suspending message (46), and (46 ACK) confirmed in reception accordingly.Respond this RTSP suspending message, MMSC suspends transmission media content (RTP audio frequency and RTP video).Then, receiver 24 is dismantled message (teardown message) (47) with RTSP and is sent to MMSC and stop RTP dialogue, allows to proceed later on stream transmission again.MMSC sends it back receiver 24 with corresponding acknowledge message (47 ACK).

By replace the PLAY instruction with RECORD, can realize to the stage 1 of the present invention in medium upload similar dialogue, wherein on the position of receiver 24, should be transmitter 21.

The message controlled function requires to carry out end-to-end notice, and this is that receiver 24 requires the certain information relevant with media content carry out streamingization because as discussed previously, so that join in the stream transmission dialogue.According to current MMS standard, information and the media content itself of describing media content are packaged together, and therefore can't send to receiver 24 independently.When not having this information, receiver 24 can't come media content download by stream transmission.By the end to end communication that separates of medium display message is provided, the method according to this invention can the information that it is required offer receiver 24, so that come media content download by stream transmission.In addition, the scope of existing non-stream transmission MMS (Microsoft Media Server) Protocol can allow to utilize end-to-end message to carry out the communication of medium display message via MMS server, makes the method according to this invention and current MMS operating such.

RTSP is considered to be in the optimal mode of realizing and control stream transmission in stage 1 and 3 if as media transmission protocol, on performance, need to carry out to a certain degree compromise with RTP/UDP or TCP.Particularly, because TCP is a Connection-oriented Protocol, the words of utilizing TCP to finish can not provide the multichannel transmitting function.Yet TCP is representing the another kind of feasible media transmission protocol that can be used in combination with the present invention.In fact, its connection-oriented characteristic has advantage in some cases, especially when the safer stream transmission of needs.According to a preferred embodiment of the invention, existing MMS (Microsoft Media Server) Protocol is used for will showing that via MMSC the end-to-end notice of descriptor offers receiver 24 from transmitter 21 in the stage 2.

Fig. 5 has represented to be incorporated into the block diagram of the portable terminal 50 (can be transmitter 21 or receiver 24) of cellular radio.Portable terminal 50 comprises display screen 51, be used to the transceiver 52 that transmits and receive radio signals, be used to handle the processor (DSP) 53 of mutual conversion of the digital signal of radio signal and data and sound, user input apparatus such as keypad or keyboard 54 are by the CPU 55 of software control operation.Portable terminal 50 also comprises the memory 56 that is used to store data and software.Memory can use for DSP53 and CPU55.Software comprises the operation of operating system and may command portable terminal 50 and the application software of certain function is provided, as MMS.Portable terminal 50 also comprises dismountable smart card, for example is used for the SIM card 57 of User Recognition.The part that memory 56 is specifically designed to the storage application software is so-called

permanent memory, even its energy supply at portable terminal 50 also can be preserved content when exhausting.Application software can be any the known systems storage, comprise that factory installs, access and by wireless downloading from personal computer is for example from the server of communication network.These all technology all can be learnt from Nokia 9110 communicators.

Fig. 6 has represented to be used for according to an embodiment of the invention the wireless adapter card 61 of Desktop PC 62, and it can be used as transmitter 21 or receiver 24.Wireless adapter card is installed in the PCMCIA groove of Desktop PC 62 (PCMCIA, personal computer memory card League of Nations)

Comprise application in the communication network that radio communication connects though described hereinbefore the present invention is it at subnetwork at least, what should emphasize is that its application never is limited to this network.The physical connection that the present invention also can be equally applicable between each device in the network (transmitter 21, the receiver 24 and the webserver) is partly or entirely to connect in the network of realizing by fixed line

The operation of the server of different embodiment involved in the present invention and terminal such as MMSC, transmitter 21 and receiver 24 is best by computer program control, and it can make these entities operate according to requirement of the present invention.

Above by the agency of special implementation of the present invention and embodiment.For a person skilled in the art, clearly the present invention is not limited to the details of the foregoing description, can carry out in utilizing other embodiment of equivalent device under the prerequisite that does not break away from feature of the present invention.Scope of the present invention is only by appended Patent right requirement restriction.

Patent Citations (200)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
US5396635A	1990-06-01	1995-03-07	Vadem Corporation	Power conservation apparatus having multiple power reduction levels dependent upon the activity of the computer system
DE4124227A1	1991-07-22	1993-01-28	Datawatt Bv	METHOD FOR EXCHANGING DATA
US7113780B2	1992-03-06	2006-09-26	Aircell, Inc.	System for integrating an airborne wireless cellular network with terrestrial wireless cellular networks and the public switched telephone network
US5224648A *	1992-03-27	1993-07-06	American Standard Inc.	Two-way wireless HVAC system and thermostat
US5325423A	1992-11-13	1994-06-28	Multimedia Systems Corporation	Interactive multimedia communication system
BR9307440A	1992-11-16	1999-06-01	Multimedia Systems Corp	Interactive multimedia entertainment system and device
SE500830C2 *	1993-05-17	1994-09-12	Ericsson Telefon Ab L M	Method and apparatus for channel utilization in a radio communication system
DE4329010A1 *	1993-08-28	1995-03-02	Sel Alcatel Ag	Radio system
US5745782A *	1993-09-28	1998-04-28	Regents Of The University Of Michigan	Method and system for organizing and presenting audio/visual information
US5689641A *	1993-10-01	1997-11-18	Vicor, Inc.	Multimedia collaboration system arrangement for routing compressed AV signal through a participant site without decompressing the AV signal
US5513126A *	1993-10-04	1996-04-30	Xerox Corporation	Network having selectively accessible recipient prioritized communication channel profiles
US5557724A *	1993-10-12	1996-09-17	Intel Corporation	User interface, method, and apparatus selecting and playing channels having video, audio, and/or text streams
EP0728339A4 *	1993-10-29	1997-05-14	Ronald D Kerbley	Interactive multimedia communications system which accesses industry-specific information
US5717955A *	1993-12-03	1998-02-10	Xerox Corporation	System for changing device from specialized interface that enables control of subsystem to general interface that performs general purpose computing functions unrelated to the subsystem
US5555376A *	1993-12-03	1996-09-10	Xerox Corporation	Method for granting a user request having locational and contextual attributes consistent with user policies for devices having locational attributes consistent with the user request
CA2136255A1	1994-01-06	1995-07-07	Ewald Christoph Anderl	Integrated electronic mailbox
AU6848794A *	1994-03-10	1994-08-15	Cable And Wireless Plc	Communication system
CA2148153A1 *	1994-05-13	1995-11-14	Abhaya Asthana	Interactive multimedia system
US5642171A *	1994-06-08	1997-06-24	Dell Usa, L.P.	Method and apparatus for synchronizing audio and video data streams in a multimedia system
AU3548995A *	1994-09-08	1996-03-27	Virtex Communications, Inc.	Method and apparatus for electronic distribution of digital multi-media information
JP3384138B2	1994-09-28	2003-03-10	株式会社日立製作所	Mobile terminal
US6029195A *	1994-11-29	2000-02-22	Herz; Frederick S. M.	System for customized electronic identification of desirable objects

US5854898A *	1995-02-24	1998-12-29	Apple Computer, Inc.	System for automatically adding additional data stream to existing media connection between two end points upon exchange of notifying and confirmation messages therebetween
US6200216B1 *	1995-03-06	2001-03-13	Tyler Peppel	Electronic trading card
US5737011A *	1995-05-03	1998-04-07	Bell Communications Research, Inc.	Infinitely expandable real-time video conferencing system
JP3184763B2	1995-06-07	2001-07-09	インターナショナル・ビジネス・マシーンズ・コーポレーション	Multimedia direct access storage device and format method
FI98175C *	1995-06-12	1997-04-25	Nokia Oy Ab	Transmission of multimedia objects in a digital data transmission system
EP0797342B1	1995-10-11	2012-03-14	Sony Corporation	Information providing device and portable communication terminal
US6724372B1	1995-10-16	2004-04-20	Nec Corporation	Ink trails on a wireless remote interface tablet and wireless remote ink field object
US6301482B1 *	1995-12-11	2001-10-09	Stanford Telecommunications, Inc.	DMA cellular radio system with a channel quality criterion
US20020086671A1 *	1996-02-05	2002-07-04	Umesh J. Amin	Roaming authorization system
US5751704A *	1996-03-01	1998-05-12	Lucent Technologies Inc.	Technique for minimizing the variance of interference in packetized interference-limited wireless communication systems
US5901287A *	1996-04-01	1999-05-04	The Sabre Group Inc.	Information aggregation and synthesization system
FI103458B *	1996-04-23	1999-06-30	Nokia Mobile Phones Ltd	Multimedia terminal and method for conducting multimedia reception
US5778187A *	1996-05-09	1998-07-07	Netcast Communications Corp.	Multicasting method and apparatus
JPH09311831A	1996-05-22	1997-12-02	Nec Corp	Electronic mail system
US6427063B1	1997-05-22	2002-07-30	Finali Corporation	Agent based instruction system and method
JP3258236B2 *	1996-05-28	2002-02-18	株式会社日立製作所	Multimedia information transfer system
US5996022A *	1996-06-03	1999-11-30	Webtv Networks, Inc.	Transcoding data in a proxy computer prior to transmitting the audio data to a client
US6006227A *	1996-06-28	1999-12-21	Yale University	Document stream operating system
US7190681B1	1996-07-10	2007-03-13	Wu William W	Error coding in asynchronous transfer mode, internet and satellites
SE508976C2	1996-07-12	1998-03-09	Europolitan Ab	Allow a subscriber to edit personal settings regarding telecommunications services
JP3333396B2	1996-07-22	2002-10-15	ケイディーディーアイ株式会社	Multimedia mail receiving means
JP3877081B2 *	1996-07-24	2007-02-07	富士通株式会社	Content and additional information management system, and content and additional information display system managed by the system
US6308171B1 *	1996-07-30	2001-10-23	Carlos De La Huerga	Method and system for automated data storage and retrieval
US6366554B1 *	1996-09-02	2002-04-02	Stmicroelectronics N.V.	Multi-carrier transmission systems
US6181714B1 *	1996-09-02	2001-01-30	Telia Ab	Multi-carrier transmission systems
US6330244B1 *	1996-09-05	2001-12-11	Jerome Swartz	System for digital radio communication between a wireless lan and a PBX
TW347498B	1996-09-30	1998-12-11	Casio Computer Co Ltd	Information supply system
SE510664C2	1996-10-29	1999-06-14	Ericsson Telefon Ab L M	Methods and apparatus for message management in a communication system
US7249344B1	1996-10-31	2007-07-24	Citicorp Development Center, Inc.	Delivery of financial services to remote devices
US6016307A *	1996-10-31	2000-01-18	Connect One, Inc.	Multi-protocol telecommunications routing optimization
US6233318B1 *	1996-11-05	2001-05-15	Comverse Network Systems, Inc.	System for accessing multimedia mailboxes and messages over the internet and via telephone
FI113224B *	1996-11-11	2004-03-15	Nokia Corp	Implementation of invoicing in a data communication system
AT233458T	1996-12-09	2003-03-15	Siemens Ag	METHOD AND TELECOMMUNICATION SYSTEM FOR SUPPORTING MULTIMEDIAL SERVICES THROUGH AN INTERFACE AND AN

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				APPROPRIATELY EQUIPPED PARTICIPANT DEVICE
US6169789B1	1996-12-16	2001-01-02	Sanjay K. Rao	Intelligent keyboard system
US5848415A *	1996-12-18	1998-12-08	Unisys Corporation	Selective multiple protocol transport and dynamic format conversion in a multi-user network
IL130735A *	1997-01-06	2004-05-12	Bellsouth Corp	Method and system for tracking network use
US6014706A *	1997-01-30	2000-01-11	Microsoft Corporation	Methods and apparatus for implementing control functions in a streamed video display system
US6415439B1 *	1997-02-04	2002-07-02	Microsoft Corporation	Protocol for a wireless control system
JPH10240643A	1997-02-25	1998-09-11	Kobe Nippon Denki Software Kk	Electronic mail system
US6167261A *	1997-02-27	2000-12-26	At&T Wireless Svcs. Inc.	Wireless communication service management
JP3792823B2	1997-02-28	2006-07-05	キヤノン株式会社	Printing apparatus and printing control apparatus
US5918002A *	1997-03-14	1999-06-29	Microsoft Corporation	Selective retransmission for efficient and reliable streaming of multimedia packets in a computer network
US6546005B1	1997-03-25	2003-04-08	At&T Corp.	Active user registry
US6211869B1 *	1997-04-04	2001-04-03	Avid Technology, Inc.	Simultaneous storage and network transmission of multimedia data with video host that requests stored data according to response time from a server
JP2984620B2	1997-05-14	1999-11-29	日本電気フィールドサービス株式会社	Email system with incoming call notification function
US7284187B1 *	1997-05-30	2007-10-16	Aol Llc, A Delaware Limited Liability Company	Encapsulated document and format system
DE69808501T3 *	1997-06-25	2007-05-03	Samsung Electronics Co., Ltd., Suwon	METHOD FOR CREATING MACRO COMMUNICATIONS FOR A HOME NETWORK
FI1074988	1997-06-30	2001-08-15	Nokia Networks Oy	Defining carrier service parameter in a radio access network
US6317795B1 *	1997-07-22	2001-11-13	International Business Machines Corporation	Dynamic modification of multimedia content
JPH1155324A *	1997-07-31	1999-02-26	Fujitsu Ltd	Communication system for computer network
US6105036A *	1997-08-27	2000-08-15	International Business Machines Corporation	Computer system and method of displaying a source code file with an ordered arrangement of object definitions
US6636733B1 *	1997-09-19	2003-10-21	Thompson Trust	Wireless messaging method
JP3274393B2 *	1997-09-22	2002-04-15	株式会社ディジタル・ビジョン・ラボラトリーズ	Network system, data distribution method, and computer-readable recording medium recording distribution data
US6608832B2	1997-09-25	2003-08-19	Telefonaktiebolaget Lm Ericsson	Common access between a mobile communications network and an external network with selectable packet-switched and circuit-switched and circuit-switched services
US6363411B1 *	1998-08-05	2002-03-26	Mci Worldcom, Inc.	Intelligent network
US6839907B1 *	1997-10-06	2002-05-28	Avaya Technology Corp.	Unified messaging system and method providing cached message streams
US6898207B2	1997-10-08	2005-05-24	Bandwidth Technology Corp.	Techniques for communicating information using Hermite-Gaussian basis functions
US6134235A *	1997-10-08	2000-10-17	At&T Corp.	Pots/packet bridge
US6167040A *	1997-10-10	2000-12-26	Nokia Telecommunications Oy	Speech transmission between terminals in different networks
US6052735A *	1997-10-24	2000-04-18	Microsoft Corporation	Electronic mail object synchronization between a desktop computer and mobile device
US6163809A *	1997-12-08	2000-12-19	Microsoft Corporation	System and method for preserving delivery status notification when moving from a native network to a foreign network
US6938268B1 *	1998-01-08	2005-08-30	Winston W. Hodge	Video stream sharing
US6469714B2 *	1998-01-26	2002-10-22	International Business Machines Corporation	Infocenter user interface for applets and components
FI1141328 *	1998-01-28	2004-08-13	Nokia Corp	Supporting the quality of data transmission through wireless data transmission

US6421707B1 *	1998-02-13	2002-07-16	Lucent Technologies Inc.	Wireless multi-media messaging communications method and apparatus
JP3641128B2 *	1998-02-20	2005-04-20	株式会社東芝	MOBILE COMPUTER DEVICE, MOBILE COMPUTER MANAGEMENT DEVICE, MOBILE COMPUTER MANAGEMENT METHOD, AND COMMUNICATION CONTROL METHOD
IL123819A *	1998-03-24	2001-09-13	Geo Interactive Media Group Lt	Network media streaming
US6522683B1 *	1998-03-24	2003-02-18	Vistar Telecommunications Inc.	Packet data communication system with buffered data and control channels
JPH11274993A	1998-03-25	1999-10-08	Nittetsu Hokkaido Seigyo System Kk	Multi-data transmitter-receiver system
US6947943B2	2001-10-26	2005-09-20	Zeosoft Technology Group, Inc.	System for development, management and operation of distributed clients and servers
FI110987B	1998-03-31	2003-04-30	Nokia Corp	Method of connecting data transfer streams
EP1076976B1	1998-04-28	2005-03-09	Nokia Corporation	A method of and a network for handling wireless session protocol (wsp) sessions.
FI105971B	1998-04-30	2000-10-31	Nokia Mobile Phones Ltd	Method and hardware for handling email
US6549612B2	1998-05-06	2003-04-15	Telecommunications Premium Services, Inc.	Unified communication services via e-mail
ES2246568T3 *	1998-05-07	2006-02-16	Samsung Electronics Co., Ltd.	PROCEDURE AND APPARATUS FOR UNIVERSAL ACCESSIBLE COMMAND AND CONTROL INFORMATION ON A NETWORK.
JPH11328063A	1998-05-08	1999-11-30	Canon Inc	Portable radio terminal equipment, electronic mail reading method, and recording medium
IT1299476B1	1998-05-25	2000-03-16	Itel S P A	SYSTEM FOR COMBINED SIGNAL MANAGEMENT
US7209949B2	1998-05-29	2007-04-24	Research In Motion Limited	System and method for synchronizing information between a host system and a mobile data communication device
US7086553B1	1998-06-01	2006-06-20	Microsoft Corporation	Presentation system with distributed object oriented multi-user domain and separate view and model objects
US6430177B1 *	1998-06-09	2002-08-06	Unisys Corporation	Universal messaging system providing integrated voice, data and fax messaging services to pc/web-based clients, including a content manager for receiving information from content providers and formatting the same into multimedia containers for distribution to web-based clients
FI108982B *	1998-06-15	2002-04-30	Nokia Corp	Message service in a wireless communication system
AUPP4110998A0 *	1998-06-15	1998-07-09	Newcom Technologies Pty Ltd	Communication method and apparatus improvements
US6594238B1	1998-06-19	2003-07-15	Telefonaktiebolaget Lm Ericsson (Publ)	Method and apparatus for dynamically adapting a connection state in a mobile communications system
FI981724A	1998-07-15	2000-01-16	Nokia Networks Oy	Selection of the execution method for a service
US6341288B1 *	1998-07-29	2002-01-22	Sybase, Inc.	Database system with methodology for accessing a database from portable devices
GB9817292D0	1998-08-07	1998-10-07	Nokia Mobile Phones Ltd	Digital video coding
US6697869B1 *	1998-08-24	2004-02-24	Koninklijke Philips Electronics N.V.	Emulation of streaming over the internet in a broadcast application
EP0984584A1 *	1998-09-04	2000-03-08	America Online, Inc.	Internet multimedia broadcast system
AU6385699A	1998-09-11	2000-04-03	Sharewave, Inc.	Method and apparatus for controlling communication within a computer network
FI108200B *	1998-09-14	2001-11-30	Nokia Mobile Phones Ltd	Switching the connection between mobile networks
AU6926099A	1998-09-15	2000-04-03	Microsoft Corporation	Annotation creation and notification via electronic mail
JP3579263B2 *	1998-09-30	2004-10-20	株式会社東芝	Program data selection method and program viewing system
JP3617930B2	1998-09-30	2005-02-09	株式会社東芝	Wireless portable terminal device, gateway device, and communication processing control method
KR100563592B1	1998-10-01	2006-09-22	엘지전자 주식회사	method for branching data in the 3rd generation mobile communication system
US6469998B1 *	1998-10-06	2002-10-22	Telefonaktiebolaget Lm Ericsson (Publ)	Method and apparatus for communicating data packets from an external packet network to a mobile radio station

US6658485B1 *	1998-10-19	2003-12-02	International Business Machines Corporation	Dynamic priority-based scheduling in a message queuing system
US6134313A *	1998-10-23	2000-10-17	Toshiba America Information Systems, Inc.	Software architecture for a computer telephony system
US6314094B1 *	1998-10-29	2001-11-06	Central Coast Patent Agency Inc	Mobile wireless internet portable radio
US6741967B1	1998-11-02	2004-05-25	Vividence Corporation	Full service research bureau and test center method and apparatus
US6249844B1 *	1998-11-13	2001-06-19	International Business Machines Corporation	Identifying, processing and caching object fragments in a web environment
US6522875B1	1998-11-17	2003-02-18	Eric Morgan Dowling	Geographical web browser, methods, apparatus and systems
US6658700B1	1998-11-23	2003-04-29	Moonlight Cordless Ltd	Method for enhancing video compression through automatic data analysis and profile selection
US6269483B1 *	1998-12-17	2001-07-31	International Business Machines Corp.	Method and apparatus for using audio level to make a multimedia conference dormant
US6792273B1	1998-12-18	2004-09-14	Telefonaktiebolaget Lm Ericsson (Publ)	Method and apparatus for resource reservation in a mobile radio communication system
US6317584B1 *	1998-12-21	2001-11-13	Nortel Networks Limited	Controlling communication in wireless and satellite networks
US20020073218A1 *	1998-12-23	2002-06-13	Bill J. Aspromonte	Stream device management system for multimedia clients in a broadcast network architecture
US6236909B1 *	1998-12-28	2001-05-22	International Business Machines Corporation	Method for representing automotive device functionality and software services to applications using JavaBeans
US6744761B1 *	1998-12-28	2004-06-01	Nortel Networks Limited	Workflow manager
US6665254B1	1998-12-31	2003-12-02	At&T Corp.	Method and apparatus for personalization of a public multimedia communications terminal
US6539118B1	1998-12-31	2003-03-25	International Business Machines Corporation	System and method for evaluating character sets of a message containing a plurality of character sets
US6584146B2	1999-01-13	2003-06-24	Vanu, Inc	Systems and methods for wireless communications
GB9900970D0	1999-01-15	1999-03-10	British Telecomm	Communications network
US6725038B1	1999-01-26	2004-04-20	Nokia Corporation	Method and apparatus for speeding up AAL2 connection setup during handover in advanced cellular networks
JP2000222302A	1999-02-02	2000-08-11	Hitachi Ltd	Electronic mail incoming communication system
JP2000232530A	1999-02-10	2000-08-22	Sharp Corp	Method for transferring electronic mail to portable terminal, electronic mail center system and portable terminal
US6498865B1 *	1999-02-11	2002-12-24	Packetvideo Corp,	Method and device for control and compatible delivery of digitally compressed visual data in a heterogeneous communication network
US6377996B1 *	1999-02-18	2002-04-23	International Business Machines Corporation	System for seamless streaming of data stored on a network of distributed primary and target servers using segmentation information exchanged among all servers during streaming
US6677858B1	1999-02-26	2004-01-13	Reveo, Inc.	Internet-based method of and system for monitoring space-time coordinate information and biophysiological state information collected from an animate object along a course through the space-time continuum
US6199099B1 *	1999-03-05	2001-03-06	Ac Properties B.V.	System, method and article of manufacture for a mobile communication network utilizing a distributed communication network
FI107425B *	1999-03-16	2001-07-31	Nokia Mobile Phones Ltd	Method and arrangement for transporting multimedia-related information in a cellular radio network
US6446130B1 *	1999-03-16	2002-09-03	Interactive Digital Systems	Multimedia delivery system
US6647535B1	1999-03-18	2003-11-11	Xerox Corporation	Methods and systems for real-time storyboarding with a web page and graphical user interface for automatic video parsing and browsing
US6260050B1 *	1999-03-23	2001-07-10	Microstrategy, Inc.	System and method of adapting automatic output of service related OLAP reports to disparate output devices
FI107306B	1999-04-13	2001-06-29	Nokia Mobile Phones Ltd	Procedure in a wireless data transfer system as well as a wireless data transfer system
US6526580B2	1999-04-16	2003-02-25	Digeo, Inc.	Broadband data broadcasting service
EP1169827B1	1999-04-19	2005-08-17	Nokia Corporation	Method for delivering messages

US6314457B1 *	1999-04-21	2001-11-06	Airclic, Inc.	Method for managing printed medium activated revenue sharing domain name system schemas
US6633906B1	1999-04-26	2003-10-14	International Business Machines Corporation	Method and system for managing windows desktops in a heterogeneous server environment
US7152092B2	1999-05-05	2006-12-19	Indeliq, Inc.	Creating chat rooms with multiple roles for multiple participants
US6538623B1	1999-05-13	2003-03-25	Pirooz Parnian	Multi-media data collection tool kit having an electronic multi-media "case" file and method of use
US7062765B1	1999-05-25	2006-06-13	Realnetworks, Inc.	System and method for updating information via a network
WO2000075682A1	1999-06-08	2000-12-14	Sony International (Europe) Gmbh	Geolocation of mobile devices
US6826371B1 *	1999-06-10	2001-07-17	Cacheflow, Inc.	Method and apparatus for seaming of streaming content
US6636888B1 *	1999-06-15	2003-10-21	Microsoft Corporation	Scheduling presentation broadcasts in an integrated network environment
JP2001005751A	1999-06-18	2001-01-12	Toshinao Komuro	Electronic mail system
SE9902452L	1999-06-28	2000-11-06	Ericsson Telefon Ab L M	Method and device in a telecommunication system
US6850614B1	1999-07-16	2005-02-01	Aspect Communication Corporation	Method for providing consolidated specification and handling of multimedia call prompts
AU6515400A	1999-08-03	2001-02-19	Videoshare, Inc.	Method and system for sharing video over a network
US6763388B1	1999-08-10	2004-07-13	Akamai Technologies, Inc.	Method and apparatus for selecting and viewing portions of web pages
US6356529B1 *	1999-08-12	2002-03-12	Converse, Ltd.	System and method for rapid wireless application protocol translation
US6636256B1	1999-08-20	2003-10-21	Verizon Corporate Services Group Inc.	Video communication system
EP1219122B1	1999-08-23	2008-08-13	Motorola, Inc.	Domain selecting system and method
US6760324B1	1999-09-10	2004-07-06	Array Telecom Corporation	Method, system, and computer program product for providing voice over the internet communication
US6553412B1	1999-09-10	2003-04-22	Avantgo, Inc.	System, method, and computer program product for web content aggregation and development, and web content delivery to clients
US6771964B1	1999-09-24	2004-08-03	Nokia Networks	Handover between wireless telecommunication networks/systems
US6600917B1	1999-10-04	2003-07-29	Telefonaktiebolaget Lm Ericsson (Publ)	Telecommunications network broadcasting of service capabilities
US6795711B1 *	1999-10-07	2004-09-21	Nokia Mobile Phones Ltd	Multimedia message content adaptation
US6625274B1 *	1999-10-12	2003-09-23	Broadsoft, Inc.	Computer system and method for providing services to users of communication systems using service entities, interface entities, and a service bus
US6768373B2	1999-10-13	2004-07-13	Datahouse Labs, Inc.	Method and system for creating and sending handwritten or handdrawn messages
US6792575B1 *	1999-10-21	2004-09-14	Equilibrium Technologies	Automated processing and delivery of media to web servers
US7028264B2	1999-10-29	2006-04-11	Surfcast, Inc.	System and method for simultaneous display of multiple information sources
EP1107512A1 *	1999-12-03	2001-06-13	Sony International (Europe) GmbH	Communication device and software for operating multimedia applications
US20020049852A1 *	1999-12-06	2002-04-25	Yen-Jen Lee	Global messaging with distributed adaptive streaming control
US7069573B1 *	1999-12-09	2006-06-27	Vidiator Enterprises Inc.	Personal broadcasting and viewing method of audio and video data using a wide area network
US7047305B1 *	1999-12-09	2006-05-16	Vidiator Enterprises Inc.	Personal broadcasting system for audio and video data using a wide area network
AU1953301A *	1999-12-10	2001-06-18	Diva Systems Corporation	Method and apparatus for storing content within a video on demand environment
US6697820B1	2000-01-14	2004-02-24	Martin B. Tarlie	System for and method of golf performance recordation and analysis
FI113231B *	2000-01-17	2004-03-15	Nokia Corp	A method for presenting information contained in messages in a multimedia terminal, a multimedia messaging system, and a multimedia terminal

US20020111907A1 *	2000-01-26	2002-08-15	Ling Marvin T.	Systems and methods for conducting electronic commerce transactions requiring micropayment
US6772212B1	2000-03-08	2004-08-03	Phatnoise, Inc.	Audio/Visual server
US6784899B1	2000-03-31	2004-08-31	Ricoh Company, Ltd.	Systems and methods for providing rich multimedia messages to remote users using telephones and facsimile machines
AU2001251353A1 *	2000-04-08	2001-10-23	Sun Microsystems, Inc.	Streaming a single media track to multiple clients
US6731940B1	2000-04-28	2004-05-04	Trafficmaster Usa, Inc	Methods of using wireless geolocation to customize content and delivery of information to wireless communication devices
US20020016818A1 *	2000-05-11	2002-02-07	Shekhar Kirani	System and methodology for optimizing delivery of email attachments for disparate devices
US6968366B1 *	2000-05-12	2005-11-22	International Business Machines Corporation	System and method for management, creation, storage, search and delivery of rich media optimized for e-commerce in a distributed information network
JP3967871B2	2000-07-18	2007-08-29	株式会社日立製作所	An image information creation device, an image communication terminal, an image distribution server, and an image information providing system.
FI112307B	2000-08-02	2003-11-14	Nokia Corp	communication Server
US6633772B2 *	2000-08-18	2003-10-14	Cygnus, Inc.	Formulation and manipulation of databases of analyte and associated values
US20020054090A1 *	2000-09-01	2002-05-09	Silva Juliana Freire	Method and apparatus for creating and providing personalized access to web content and services from terminals having diverse capabilities
US7000187B2	2000-09-30	2006-02-14	Microsoft Corporation	System and method for using dynamic web components to remotely control the security state of web pages
US6976082B1	2000-11-03	2005-12-13	At&T Corp.	System and method for receiving multi-media messages
US6654460B2	2000-11-30	2003-11-25	Pitney Bowes Inc.	Method and system for remote retrieval of messages using spontaneous networking technology
US20020120939A1 *	2000-12-18	2002-08-29	Jerry Wall	Webcasting system and method
US6947738B2 *	2001-01-16	2005-09-20	Telefonaktiebolaget Lm Ericsson (Publ)	Multimedia messaging service routing system and method
FI115744B	2001-02-08	2005-06-30	Nokia Corp	communication Service
US6714778B2	2001-05-15	2004-03-30	Nokia Corporation	Context sensitive web services
WO2005050625A2	2003-11-14	2005-06-02	Senvid, Inc.	Managed peer-to-peer applications in a secure network
US7881233B2	2004-09-01	2011-02-01	Cisco Technology, Inc.	Techniques for planning a conference using location data

* Cited by examiner, † Cited by third party

Cited By (75)

Publication number	Priority date	Publication date	Assignee	Title
CN1309267C *	2004-02-05	2007-04-04	宏碁股份有限公司	Information transfer system
CN100378692C *	2003-04-07	2008-04-02	Sk参力康姆株式会社	Method and system of creating and transmitting multimedia content
CN101217687B *	2007-01-04	2010-12-08	中国移动通信集团公司	Mms message state information processing method
CN1960516B *	2005-11-02	2011-05-18	Lg电子株式会社	Duplicate notification message processing method in terminal
CN101115260B *	2006-07-26	2012-09-05	Lg电子株式会社	Mobile communication terminal and method for playing message in real time thereof
CN102742244A *	2009-12-04	2012-10-17	高通股份有限公司	Mobile media server
CN102860021A *	2010-04-20	2013-01-02	三星电子株式会社	Interface apparatus and method for transmitting and receiving media data
CN103649937A *	2011-05-09	2014-03-19	韦斯技术有限公司	Method and apparatus for dynamically generating media sequences on demand for HTTP live streaming
US8825772B2	2007-06-28	2014-09-02	Voxer Ip Llc	System and method for operating a server for real-time communication of time-based media
US8832299B2	2009-01-30	2014-09-09	Voxer Ip Llc	Using the addressing, protocols and the infrastructure of email to

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				support real-time communication
US8849927B2	2009-01-30	2014-09-30	Voxer Ip Llc	Method for implementing real-time voice messaging on a server node
CN102292944B *	2009-01-30	2014-12-10	沃克斯知识产权有限责任公司	Method and device for near real-time communication
US9178916B2	2007-06-28	2015-11-03	Voxer Ip Llc	Real-time messaging method and apparatus
CN105144673A *	2012-12-28	2015-12-09	格莱德通讯有限公司	Reduced latency server-mediated audio-video communication
US9608947B2	2007-06-28	2017-03-28	Voxer Ip Llc	Telecommunication and multimedia management method and apparatus
US10375139B2	2007-06-28	2019-08-06	Voxer Ip Llc	Method for downloading and using a communication application through a web browser
US11095583B2	2007-06-28	2021-08-17	Voxer Ip Llc	Real-time messaging method and apparatus
Family To Family Citations				
FI112307B	2000-08-02	2003-11-14	Nokia Corp	communication Server
FI115744B	2001-02-08	2005-06-30	Nokia Corp	communication Service
US7631037B2	2001-02-08	2009-12-08	Nokia Corporation	Data transmission
GB2397723A *	2002-11-14	2004-07-28	Nokia Corp	Data transmission
WO2002082837A1 *	2001-04-06	2002-10-17	Hellodes A/S	Message distribution system
WO2002084261A1	2002-04-03	2002-10-09	Nokia Corporation	Enabling a content provider initiated content delivery via a specific radio access network
WO2003094534A2 *	2002-05-06	2003-11-13	Telefonaktiebolaget Lm Ericsson (Publ)	Multi-user multimedia messaging services
US20030210683A1 *	2002-05-07	2003-11-13	Koninklijke Kpn N.V.	Telecommunication system
FI20020932A0 *	2002-05-17	2002-05-17	Tero Jartti	Dissemination of image messages in a mobile communication system
US20030227916A1 *	2002-06-06	2003-12-11	Toni Paila	System and method for the multicast distribution of multimedia messaging service messages
DE10225425A1 *	2002-06-07	2003-12-18	Siemens Ag	Mobile phone network data transfer method, especially for transfer of multimedia messages, whereby message data is subject to data type and format conversion according to the receiver profile
US8117328B2 *	2002-06-25	2012-02-14	Microsoft Corporation	System and method for automatically recovering from failed network connections in streaming media scenarios
US7447801B2 *	2002-11-18	2008-11-04	Microsoft Corporation	Composable data streams for managing flows
CN1509104A *	2002-12-17	2004-06-30	◆ٹ◆◆◆◆◆◆ㅁ◆◆◆◆ ◆..	Multi-media information service method and system
KR100517988B1	2003-04-16	2005-09-30	엘지전자 주식회사	Method for receiving sms of gsm
SE526415C2 *	2003-07-10	2005-09-13	Telia Ab	Method and system for uneven distribution of data
SE0302040L *	2003-07-10	2005-01-11	Telia Ab	System and method for storing services
FR2859851A1 *	2003-09-11	2005-03-18	France Telecom	Multimedia file accessing system for digital cellular radiotelephone network e.g. GPRS/GSM type network, has notifying server sending file storing notification to mobile terminal identified by address of another mobile terminal
US20050068975A1 *	2003-09-30	2005-03-31	Pierre Colin	Computer data transport system and method
JP3865139B2 *	2003-10-15	2007-01-10	オンキヨー株式会社	Network AV system
FR2862179B1 *	2003-11-10	2006-02-03	Cit Alcatel	METHOD AND SYSTEM FOR TRANSMITTING / RECEIVING MULTIMEDIA CONTENT VIA A RADIO COMMUNICATION NETWORK
CN1882940A *	2003-11-13	2006-12-20	皇家飞利浦电子股份有限公司	Content based partial download
JP4561084B2 *	2003-11-25	2010-10-13	ソニー株式会社	Service management apparatus, service management method, service providing system, and service providing method
JP4459644B2 *	2004-02-06	2010-04-28	株式会社エヌ・ティ・ティ・ドコモ	Data receiving apparatus and data receiving method
US9167068B2	2004-03-24	2015-10-13	Onstream Media Corporation	Remotely accessed virtual recording room

FI117313B *	2004-04-05	2006-08-31	Nokia Corp	Message handling method in telecommunication system, involves obtaining capability data relating to client terminal and checking whether obtained data comprises upper-level application that is supported by client terminal
US20050221813A1 *	2004-04-05	2005-10-06	Jarno Rajahalme	System and method for initiating auxiliary communication interfaces via a primary communication interface
US20060031369A1 *	2004-07-01	2006-02-09	Marc Caron	Method, system, and edge multimedia messaging service (MMS) relay/server for multi-staged MMS
CN1722709A *	2004-07-15	2006-01-18	皇家飞利浦电子股份有限公司	Method and system for transmitting multimedia message from transmitter via a terminal to another terminal
US9647952B2	2004-08-06	2017-05-09	LiveQoS Inc.	Network quality as a service
US8009696B2	2004-08-06	2011-08-30	Ipeak Networks Incorporated	System and method for achieving accelerated throughput
US9189307B2	2004-08-06	2015-11-17	LiveQoS Inc.	Method of improving the performance of an access network for coupling user devices to an application server
US7953114B2	2004-08-06	2011-05-31	Ipeak Networks Incorporated	System and method for achieving accelerated throughput
EP1787457A4 *	2004-09-06	2009-11-04	Nokia Corp	System and method for initiating auxiliary communication interfaces via a membership-based network
US20060075064A1 *	2004-09-30	2006-04-06	International Business Machines Corporation	Concurrent ftp read and write
US20060235883A1	2005-04-18	2006-10-19	Krebs Mark S	Multimedia system for mobile client platforms
US8473005B2 *	2005-04-29	2013-06-25	Siemens Aktiengesellschaft	FM transmitter for mobile communication device
US8543095B2 *	2005-07-08	2013-09-24	At&T Mobility Ii Llc	Multimedia services include method, system and apparatus operable in a different data processing network, and sync other commonly owned apparatus
CN100562144C *	2005-09-29	2009-11-18	北京银奇数据系统有限公司	Non-interference service management system and service implementation method
US8249559B1	2005-10-26	2012-08-21	At&T Mobility Ii Llc	Promotion operable recognition system
EP1955144A4 *	2005-11-09	2011-12-14	Chipcon As	Over-the-air download (osd) methods and apparatus for use in facilitating application programming in wireless network devices of ad hoc wireless communication networks
US20070160135A1 *	2006-01-13	2007-08-02	Dilithium Networks Pty Ltd.	Multimedia content exchange architecture and services
US9344862B2 *	2006-11-13	2016-05-17	Samsung Electronics Co., Ltd	System and method for providing converged messaging service
GB0719233D0 *	2007-10-02	2007-11-14	Skype Ltd	Method of transmitting data in a communication system
JP5012397B2 *	2007-10-16	2012-08-29	日本電気株式会社	Communication system, method, apparatus, and program
US8819741B2 *	2008-04-03	2014-08-26	Microsoft Corporation	Streaming video over a wireless network
US7979557B2 *	2008-04-11	2011-07-12	Mobitv, Inc.	Fast setup response prediction
WO2010087879A1 *	2009-01-30	2010-08-05	Rebelvox, Llc	Method and device for near real-time communication
CN101707636B *	2009-10-30	2015-05-06	中兴通讯股份有限公司	Method and system for sharing video between mobile terminals
US20110249667A1	2010-04-13	2011-10-13	Rebelvox, Llc	Apparatus and method for transmitting media using either network efficient protocol or a loss tolerant transmission protocol
US10951743B2	2011-02-04	2021-03-16	Adaptiv Networks Inc.	Methods for achieving target loss ratio
US8711790B2	2011-02-07	2014-05-06	LivQoS Inc.	Mechanisms to improve the transmission control protocol performance in wireless networks
US9590913B2	2011-02-07	2017-03-07	LiveQoS Inc.	System and method for reducing bandwidth usage of a network
US9137294B2 *	2011-08-19	2015-09-15	KeepTree, Inc.	Method, system, and apparatus for future delivery of digital content over a network
US20130171982A1 *	2011-12-28	2013-07-04	Cisco Technology, Inc.	Method and apparatus for remote secure access to wireless network
KR101397592B1	2012-03-21	2014-05-20	삼성전자주식회사	Method and apparatus for receiving multimedia contents
DE102013100238B4 *	2013-01-10	2015-09-17	Jürgen Knecht	Method and system for transmitting information between two terminals

CN107426088A *	2017-07-20	2017-12-01	北京小米移动软件有限公司	Pictorial information processing method and processing device

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
CN1393090A	2003-01-22	Method for forming multimedia streaming session
CN1656789A	2005-08-17	System for adaptation of sip messages based on recipient's terminal capabilities and preferences
CN1656768A	2005-08-17	Multimedia messaging method and system
US8422485B2	2013-04-16	Method and system for providing multimedia portal contents in communication system
US20100257566A1	2010-10-07	Broadcast storage arrangement
CN1708754A	2005-12-14	System and method for conveying terminal capability and user preferences-dependent content characteristics for content adaptation
CN1833391A	2006-09-13	Reducing effects caused by transmission channel errors during a streaming session
CN1960453A	2007-05-09	Quick method and system for digital channel, and device for creating auxiliary channel
CN1946162A	2007-04-11	Method for obtaining EPG and IPTV service system
CN1801811A	2006-07-12	Mobile mail terminal adapting method and system
CN101043614A	2007-10-03	Auxiliary content handling over digital communication systems
CN1914877A	2007-02-14	Transmission of asset information in streaming services
CN1679299A	2005-10-05	Method of streaming multimedia data
CN1662889A	2005-08-31	Electronic mail delivery system, mail server, and mail client
CN1925486A	2007-03-07	Digital television multimedia message system framework and communication protocol thereof
CN1787682A	2006-06-14	Method and system for sending video signal between different types of user agents
CN1801785A	2006-07-12	Multimedia content interaction system based on instantaneous communication and its realizing method
CN1913444A	2007-02-14	Mobile terminal and method for implementing flow media download on mobile terminal
CN1777186A	2006-05-24	Method for realizing information and application service for mobile instant communication
CN1711786A	2005-12-21	Flow-type transmission of medium in multi-media information receiving-transmitting service
CN101052048A	2007-10-10	Conversation initiating protocol calling method, middle ware and conversation initiating protocol user agency
CN101383841A	2009-03-11	Quasi-real-time stream implementing method for mobile stream media service
CN1933476A	2007-03-21	Subscribing method based on session sponsor protocol
CN1764167A	2006-04-26	Network flow data transmitting system

Priority And Related Applications

Applications Claiming Priority (2)

Application	Filing date	Title
FI20001741A	2000-08-02	communication Server
FI20001741	2000-08-02	

Legal Events

Date	Code	Title	Description
2003-01-22	C06	Publication	
2003-01-22	PB01	Publication	
2003-08-06	C10	Entry into substantive examination	

2003-08-06	SE01	Entry into force of request for substantive examination	
2009-10-28	C14	Grant of patent or utility model	
2009-10-28	GR01	Patent grant	
2012-03-28	ASS	Succession or assignment of patent right	**Owner name**: NOKIA 2011 PATENT TRUST CO. **Free format text**: FORMER OWNER: NOKIA OYJ **Effective date**: 20120217
2012-03-28	C41	Transfer of patent application or patent right or utility model	
2012-03-28	C56	Change in the name or address of the patentee	**Owner name**: 2011 INTELLECTUAL PROPERTY ASSET TRUST CO. **Free format text**: FORMER NAME: NOKIA 2011 PATENT TRUST CO.
2012-03-28	CP01	Change in the name or title of a patent holder	**Address after**: Delaware **Patentee after**: Nokia Corp. **Address before**: Delaware **Patentee before**: NOKIA 2011 patent trust
2012-03-28	TR01	Transfer of patent right	**Effective date of registration**: 20120217 **Address after**: Delaware **Patentee after**: NOKIA 2011 patent trust **Address before**: Espoo, Finland **Patentee before**: Nokia Oyj
2012-05-23	ASS	Succession or assignment of patent right	**Owner name**: CORE WIRELESS LICENSING S.A.R.L. **Free format text**: FORMER OWNER: 2011 INTELLECTUAL PROPERTY ASSET TRUST CO. **Effective date**: 20120417
2012-05-23	C41	Transfer of patent application or patent right or utility model	
2012-05-23	TR01	Transfer of patent right	**Effective date of registration**: 20120417 **Address after**: Luxemburg Luxemburg **Patentee after**: Core Wireless Licensing S.A.R.L. **Address before**: Delaware **Patentee before**: Nokia Corp.
2021-08-17	CX01	Expiry of patent term	**Granted publication date**: 20091028
2021-08-17	CX01	Expiry of patent term	

Concepts

machine-extracted

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Name	Image	Sections	Count	Query match
communication		claims,abstract,description	123	0.000
computer program		claims,abstract,description	24	0.000
Methylmethionine sulfonium salt		claims,abstract	12	0.000
biological transmission		claims,description	124	0.000
corresponding		abstract,description	5	0.000

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[19] 中华人民共和国国家知识产权局

[51] *Int. Cl*[7]
H04L 29/06
H04Q 7/22

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[30] 优先权

[32] 2000.8.2 [33] *FI* [31] 20001741

[86] 国际申请 *PCT/FI*01/00686 2001.7.30

[87] 国际公布 *WO*02/11398 英 2002.2.7

[85] 进入国家阶段日期 2002.5.27

[71] 申请人 诺基亚有限公司

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[74] 专利代理机构 中国专利代理(香港)有限公司

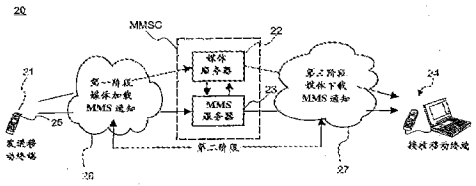
代理人 杨 凯 张志醒

权利要求书 4 页 说明书 18 页 附图 5 页

[54] 发明名称 形成多媒体流式传输对话的方法

[57] 摘要

一种通信方法,包括步骤:发送器 21 将包括了至少一个流式分量和描述此流式分量的信息的消息传送给通信服务器 *MMSC*,通信服务器作出响应,将通知消息发送给接收器 24,通知可以接收此流式分量。通知消息是多媒体消息,包括对流式分量的描述。通信服务器 *MMSC* 和接收器形成流式传输对话,利用描述流式分量的信息来传送流式分量。然后通信服务器 *MMSC* 在流式传输对话中将流式分量以顺序子部分的形式传送给接收器 24。还介绍了与这种方法相关的通信系统 20,通信服务器 *MMSC*,通信设备 21,24 和计算机程序产品。



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包括在所述内容的产生完成之前发送所述描述内容的信息的步骤。

9. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括在所述通知消息中将所述描述内容的信息从所述通信服务器发送到所述第二终端的步骤。

10. 如上述权利要求中任一项所述的通信方法，其特征在于，所述通信服务器包括用于存储和传送所述内容的内容服务器以及用于接收和传送所述通知消息的通知服务器，其特征在于所述内容服务器和通知服务器具有物理关系，所述物理关系从由单一单元、分开单元、分布在不同地理位置的分开单元组成的组中选择。

11. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括作为多媒体消息服务(MMS)的一部分来执行所述方法。

12. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括将所述内容多信道传送给除所述第二终端之外的至少一个其它终端。

13. 一种通信系统(20)，包括:

包括第一终端(21)和第二终端(24)的多个终端(21,24);

可访问所述多个终端的通信服务器(MMSC);

用于从所述第一终端(21)中发送内容和描述内容的信息给所述通信服务器(MMSC)的装置(52)；以及

用于从所述通信服务器中发送通知消息给所述第二终端(24)的装置(23)，所述通知消息通知所述第二终端(24)可以接收所述内容;

其特征在于，所述系统还包括:

利用所述描述内容的信息在所述通信服务器(MMSC)和第二终端(50)之间形成流式传输对话的装置(22;52);

在所述流式传输对话期间将所述内容从所述通信服务器中以顺序子部分的形式传送给所述第二终端(24)的装置(22)。

14. 如权利要求 13 所述的通信系统，其特征在于，所述通信系统还包括在所述第一终端(21)产生所述内容的装置(25)。

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1. 一种通信方法，包括步骤:

通过通信服务器从第一终端中接收内容和描述所述内容的信息;

从所述通信服务器中发送通知消息给第二终端，所述通知消息通知可以接收所述内容;

其特征在于，所述方法还包括:

利用所述描述内容的信息在所述通信服务器和第二终端之间形成流式传输对话; 和

在所述流式传输对话期间从所述通信服务器中以顺序子部分的形式将所述内容传送给所述第二终端。

2. 如权利要求 1 所述的通信方法，其特征在于，所述方法还包括以分开的消息形式将所述内容和描述内容的信息从所述第一终端发送给所述通信服务器。

3. 如权利要求 1 或 2 所述的通信方法，其特征在于，所述方法还包括通过所述通信服务器将所述描述内容的信息作为多媒体消息的媒体分量传送给所述第二终端。

4. 如上述权利要求中任一项所述的通信方法，其特征在于，所述内容包括至少一个非流式分量和至少一个流式分量的描述。

5. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括在所述通信服务器传送所述内容给所述第二终端之前所述第二终端请求获得所述内容。

6. 如上述权利要求中任一项所述的通信方法，其特征在于，所述方法还包括在所述第一终端产生所述内容。

7. 如权利要求 6 所述的通信方法，其特征在于，所述方法还包括将在所述第一终端产生的所述内容流式传输到所述通信服务器中的步骤。

8. 如权利要求 6 或 7 所述的通信方法，其特征在于，所述方法还

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15. 如权利要求 13 或 14 所述的通信系统，其特征在于，所述通信服务器(MMSC)包括通知服务器(23)，用以从所述第一终端(21)中接收所述描述内容的信息，并发送所述通知消息给所述第二终端(24)。

16. 如权利要求 13 到 15 中任一项所述的通信系统，其特征在于，所述通信服务器还包括内容服务器(22)，用以从所述第一终端(21)中接收所述内容，并发送所述内容给所述第二终端(24)。

17. 一种用于服务多个终端(21,24)的通信服务器(MMSC)，所述通信服务器包括:

从第一终端(21)中接收内容和描述所述内容的信息的装置；以及

将通知消息发送给第二终端(24)的装置，所述通知消息通知所述第二终端可以接收所述内容;

其特征在于，所述通信服务器(MMSC)还包括:

利用所述描述内容的信息而与所述第二终端形成流式传输对话的装置(22)；以及

在所述流式传输对话期间将所述内容以顺序子部分的形式传送给所述第二终端的装置(22)。

18. 一种计算机程序产品，包括:

计算机程序代码，可使通信服务器从第一终端中接收内容和描述所述内容的信息；以及

计算机程序代码，可使所述通信服务器发送通知消息给第二终端，所述通知消息通知所述第二终端可以接收所述内容;

其特征在于，所述计算机程序产品还包括:

计算机程序代码，可使所述通信服务器利用所述描述内容的信息在所述通信服务器和第二终端之间形成流式传输对话；以及

计算机程序代码，可使所述通信服务器在所述流式传输对话期间将所述内容以顺序子部分的形式传送给所述第二终端。

19. 一种通信设备(21,24)，包括:

用于从通信服务器(MMSC，23)中接收所述通信设备(21,24)所需的

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描述消息的信息的装置(52);

其特征在于,

所述消息包括流式分量;以及

所述描述消息的信息包括描述所述流式分量的信息;

所述通信设备(21,24)还包括:

利用所述描述流式分量的信息而与所述通信服务器(MMSC)形成流式传输对话以接收所述流式分量的装置(52,55);以及

从所述通信服务器中以顺序子部分的形式接收内容的装置(52)。

20. 一种计算机程序产品,包括:

计算机程序代码,可使通信设备从通信服务器中接收所述通信设备所需的描述消息的信息;

其特征在于,

所述消息包括流式分量;以及

所述描述消息的信息包括描述所述流式分量的信息;

所述计算机程序产品还包括:

计算机程序代码,可使所述通信设备通过利用所述描述流式分量的信息而与所述通信服务器形成流式传输对话以接收所述流式分量;以及

计算机程序代码,可使所述通信设备以顺序子部分的形式从所述通信服务器中接收内容。

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形成多媒体流式传输对话的方法

本发明涉及通信服务，尤其但不唯一地涉及多媒体消息服务(MMS)中的流式传输。

电子邮件(email)是一种消息传递服务，可允许以电子格式进行快速、经济的通信。电子邮件消息通过因特网可以送至世界各地，而且在许多情况下都是免费的。另外，相同的电子邮件消息可以传送给多个接收者。此项技术称为多信道传送。由于电子邮件消息的传递是完全自动的，因此电子邮件消息可以在发送后很短时间内送达。电子邮件消息可以携带计算机文件如文档，程序文件和不同的媒体文件如音频或视频剪辑。

拥有个人计算机(PC)的普通家庭用户不愿意将 PC 与他们的电子邮件系统(例如因特网)永久地连接，而是希望在上一次电子邮件消息读取对话后与存储消息的电子邮件服务器建立临时和远程的连接。利用这种连接和电子邮件消息读取程序，新的电子邮件消息可从电子邮件服务器传送到 PC 的存储器或硬盘中，然后在连接时读取或者是在连接关闭后读取。PC 和电子邮件服务器之间的数据传送通常利用与 PC 连接的调制解调器来进行。

在下文中，术语“发送器”是指用于传送接收器所需数据的装置，“接收器”是指用于接收数据且数据希望送达的装置。

图 1 表示了基于因特网的电子邮件系统 10 的示意图，它包括发送器 11、接收器 15、具有发送器的电子邮件服务器 13 和接收器的电子邮件服务器 14 的因特网 12。

在因特网中，电子邮件消息利用一些众所周知的协议来传送。简单地说，电子邮件消息一旦写好就分成为标有接收器地址的单个单元，并传送给发送器的电子邮件服务器。发送器的电子邮件服务

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器将消息通过因特网转发给接收器的电子邮件服务器。当下一步接收器通过因特网与接收器的电子邮件服务器连接并通过电子邮件读取程序检查是否已收到新的电子邮件时，接收器可以通过连接(如调制解调器连接)下载任何新收到的电子邮件消息。当已完全接收电子邮件消息时，接收器可将其显示给用户。应注意的是，在传送的各个阶段，根据所利用的数据传送协议通常将电子邮件消息分成许多小的信息包。在接收时，接收器将所有的信息包收集在一起，将它们以正确的顺序(如需要的话)组合，将电子邮件消息重建为原有的格式，最后将电子邮件消息显示给接收器的用户。

上述电子邮件传送系统很方便，并可实现多信道传送，但它最适合接收电子邮件消息并在用户方便的时候显示消息，这也是其最初的目的。因此，给定电子邮件消息的内容只能在完成电子邮件消息到接收器的传送后才能被访问。这对纯文本格式的电子邮件消息来说不存在真正的问题，但对于大量的媒体或多媒体内容(剪辑)来说就存在着缺点，即接收器用户无法在下载仍在进行时启动显示剪辑。另一个缺点是为了接收电子邮件消息，接收器必须有足够大的内存来容纳整个消息。特别是在移动通信网络或者是部分通信线路是由无线电连接形成的任何其它网络中，还有一个问题是接收较长的电子邮件消息是否会由例如无线电覆盖的临时损耗或恶化而发生中断或错误。移动终端还只有有限的内存来存储接收到的电子邮件消息，这进一步加剧了与在接收器中容纳消息有关的问题。通过多媒体消息服务(MMS)能至少部分地减轻这些问题。

MMS 是一种新型的端对端消息发送方法，用于具有文本和/或多媒体内容的多媒体消息的单向传送。MMS 提供了在移动用户之间和移动用户与因特网之间发送多媒体消息的可能性。这是执行第三代移动通信网络中的 MMS 的已达成共识的解决方案。在第三代合作项目(3GPP)技术规范 23.140 V.3.0.1 “多媒体消息服务(MMS)，功能描述，第二级(1999 年版)”中描述了所提出的 MMS 当前的确定特征。

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在 3GPP 23.140 中提出的 MMS 利用存储转发方法以传送多媒体消息。多媒体消息构建成使媒体内容、描述内容所必需的信息和识别多媒体消息所希望的接收器的地址信息封装在一起。然后将多媒体消息发送给 MMS 中心 MMSC，后者又向接收器通知可以接收此多媒体消息。接收终端整体地下载多媒体消息，一旦下载完毕并存储在接收终端中后就显示给用户。

应该理解的是，虽然术语“多媒体消息”通常描述的是含有超过一种类型的内容的消息，但在此应用中，此术语延伸到只含有一种媒体类型的消息。

当前所指定的 MMS 具有接收终端必须在将多媒体消息显示给用户之前存储多媒体消息的缺点。因此，接收终端的存储器大小决定了所能下载的多媒体消息大小的上限。国际专利申请 WO99/166746 通过在整个信息不适合接收终端的存储器时将消息分成多个子消息(片段)而解决了这一问题。这些子消息很小，足以使得接收终端可以将各子消息整个地单独下载。在这种情况下，接收终端首先下载第一子消息。在完全下载了第一子消息后，接收终端可以显示第一子消息。在显示了第一子消息后接收终端可下载第二子消息并显示第二子消息。下载每一子消息并单独地显示各子消息。子消息的大小由接收终端的存储器大小而定，其必须小到能存入存储器中。

除了 MMS 之外，在因特网中还利用流式传输技术来通过固定线路传送信息。术语“流式传输”通常用于描述在媒体流通过数据网络传送给客户时以连续的方式显示这个或这些媒体流，例如音频或视频流，或者是不同流的结合。“流”通常是指可使接收器显示一些连续数据如运动画面、声音或音乐的数据流。在典型的视频流中，每秒传送 10 到 20 帧图像。实际上，流式传输可以是实况(实时)的，或者是以请求模式来执行的。如其名称所示的那样，“实况流式传输”描述了从实况源、如由视频照相机所产生的数字图像流中形成媒体流，而“请求式流式传输”描述了从例如存储在服务器中的文

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件中形成媒体流。流式传输还涉及建立流式传输对话，在此期间信息流传送给客户。

流式传输具有两个十分重要的功能，即流式传输控制和媒体传输。流式传输控制涉及利用已协商或预配置的参数值组来建立、管理和终止流式传输对话。媒体传输涉及在建立对话的过程中利用已同意或已协商的传输协议来传输媒体。例如，在因特网中存在达成广泛共识的协议，可提供流式传输控制和媒体传输的功能，这些协议可以在流式传输应用中作为传输协议。

虽然流式传输广泛应用于因特网中，但仍然需要对其进行调整，以适于在移动通信网络中使用。应该理解的是，由于移动终端通常只具有有限的存储能力(存储器)，因此在移动网络中希望使用流式传输。然而，目前的移动通信网络不支持流式传输，其原因如下所述。

如当前 MMS 规范中所提出的包含有媒体内容、消息描述和地址信息的单一封装体与媒体内容的流式传输不兼容。为了建立流式传输的对话，接收终端需要预先知道与媒体内容有关的一定的信息。这些信息包括但不限于包含在多媒体消息中的媒体类型，媒体的编码方式，以及可用来下载媒体内容的合适的传输协议。由于当前的 MMS 规范需要描述媒体内容的信息与多媒体消息本身封装在一起，接收终端无法得到关于媒体内容属性的先验知识，因而无法建立任何形式的流式传输对话。因此，根据目前的 MMS 规范，必须将整个多媒体消息下载到接收终端中以抽取多媒体内容的细节。只有在此之后才能播放任何媒体内容，例如视频和/或音频剪辑给接收终端的用户。由于多媒体剪辑通常具有大量的位，因而接收终端如移动站需要相对较大的存储器来完全地接收剪辑，这就限制了当前 MMS 的使用。多媒体消息在显示前需要完全地下载，在一定条件下，例如在多媒体消息很大时，或者连接的数据传输率很低时，还产生了显著的延误。

还应强调的是由当前的 MMS 规范所建议的寻址方案不能促进在

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此系统中进行流式传输。当前的MMS可视为“面向发送器”的系统。换句话说，发送器决定将何种媒体内容发送给接收器，将媒体内容封装在多媒体消息中并将其传送给所需的接收器。另一方面，流式传输更倾向于“面向接收器”。为建立流式传输对话，通常需要在接收器和发送器，例如基于网络的服务器之间形成流式传输连接，一旦建立了必要的连接，内容就从服务器中流式传送。因此，流式传输对话的建立需要接收器知道媒体内容的位置，但不需要要求媒体内容直接地寻址接收器。

现在发明了一种新的解决方法，它可以避免或至少减轻现有技术中的问题。

根据本发明的第一方面，提供了一种通信方法，包括步骤:

通过通信服务器从第一终端中接收内容和描述此内容的信息;以及

从通信服务器中发送通知消息给第二终端，通知消息通知可以接收内容;

其特征在于，所述方法还包括:

利用描述内容的信息在通信服务器和第二终端之间形成流式传输对话；以及

在流式传输对话期间以顺序子部分的形式将内容从通信服务器中传送给第二终端。

由于利用第二终端的接收器不需要等到内容完全地被接收，因此以流的形式将内容传送给第二终端可允许对内容进行快速存取。

内容和描述内容的信息最好以分开的消息形式从第一终端发送给通信服务器。这就允许分开地进行发送，例如将内容发送给一个通信服务器和将通知消息发送给接收器。

描述内容的信息最好在通知消息中从通信服务器发送给第二终端。

所述方法最好还包括通过通信服务器将描述内容的信息作为多

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媒体消息的媒体分量发送给第二终端。

发送作为媒体分量的流式分量的描述允许在微小变化范围内利用现有的多媒体消息系统。它还允许在同一多媒体消息中嵌入超过一个媒体分量，其中一些或所有媒体分量可以是流式分量的描述。

多媒体消息最好包括至少一个非流式分量和至少一个流式分量的描述。

通信方法最好还包括在流式传输对话期间以流的形式在第二终端处显示所接收的内容的步骤。第二终端可以立刻启动并显示内容，并可以在传送期间进行一定的操作(如暂停或终止数据传送)。

所述方法最好还包括在第二终端处决定在某一时间是否接收内容，以及如果决定接收内容的话就形成流式传输对话的步骤。

通信服务器最好包括用于存储和传送内容的内容服务器以及用于接收和传送通知的通知服务器，其中内容服务器和通知服务器具有物理关系，该物理关系从由单一单元、分开单元、分布在不同地理位置处的分开单元组成的组中选择。

通信方法最好还包括在第一终端处产生内容的步骤。在第一终端处产生的内容最好流向内容服务器，且内容的传送在产生内容的期间进行。从而，与内容在第一终端处完全地产生或大部分产生后再流向内容服务器相比，用户就可以更早地获得内容。

当采用流式内容的产生时，描述内容的信息最好在内容产生完成之前发送，因此第二终端可以在内容产生完成之前开始接收内容。

在通信服务器和第二终端之间的流式传输对话期间，接收器最好可以发布终止命令来终止对话。流式传输对话最好响应终止命令而终止。

通知消息最好包括第二终端所要求的信息，以便与内容服务器形成流式传输对话。

所述方法最好作为多媒体消息服务(MMS)的一部分来执行。

所述方法最好还包括在至少一个其它流式传输对话中将内容多

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信道传送给除第二终端之外的至少一个其它终端的步骤。

在具有多个流式传输对话的实施例中，各流式传输对话可以与其它流式传输对话相对独立地形成，因此对话可以在不同的时间或相同的时间开始或结束。各对话最好可以响应各个终端并独立于其它流式传输对话而终止。

根据本发明的第二方面提供了一种通信系统，包括：

具有第一终端和第二终端的多个终端；

可访问多个终端的通信服务器；

用于从第一终端中发送内容和描述内容的信息给通信服务器的装置；以及

用于从通信服务器中发送通知消息给第二终端的装置；

其特征在于，所述系统还包括：

利用描述内容的信息在通信服务器和第二终端之间形成流式传输对话的装置；以及

在流式传输对话期间将内容从通信服务器中以顺序子部分的形式传送给第二终端的装置。

所述系统最好还包括可在第一终端处产生内容的装置。

所述系统最好还包括可在流式传输对话期间在第二终端处以流的形式显示所接收的内容的装置。

根据本发明的第三方面提供了一种用于服务多个终端的通信服务器，所述通信服务器包括：

从第一终端中接收内容和描述内容的信息的装置；以及

将通知消息发送给第二终端的装置，通知消息通知第二终端可以接收内容；

其特征在于，所述服务器还包括：

利用描述内容的信息与第二终端形成流式传输对话的装置；以及

在流式传输对话期间将内容以顺序子部分的形式传送给第二终

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端的装置。

根据本发明的第四方面提供的一种计算机程序产品，包括:

计算机程序代码，可使通信服务器从第一终端中接收内容和描述内容的信息；以及

计算机程序代码，可使通信服务器将通知消息发送给第二终端，通知消息通知第二终端可以接收内容;

其特征在于，所述计算机程序产品还包括:

计算机程序代码，可使通信服务器利用描述内容的信息在通信服务器和第二终端之间形成流式传输对话；以及

计算机程序代码，可使通信服务器在流式传输对话期间将内容以顺序子部分的形式传送给第二终端。

根据本发明的第五方面提供了一种通信设备，它包括:

用于从通信服务器中接收通信设备所需的描述消息的信息的装置;

其特征在于，

所述消息包括流式分量;

描述消息的信息包括描述流式分量的信息；以及

所述通信设备还包括:

利用描述流式分量的数据而与通信服务器形成流式传输对话，以便接收流式分量的装置；以及

从通信服务器中以顺序子部分的形式接收内容的装置。

根据本发明的第六方面提供了一种计算机程序产品，包括:

计算机程序代码，可使通信设备从通信服务器中接收通信设备所需的描述消息的信息;

其特征在于，

所述消息包括流式分量;

描述消息的信息包括描述流式分量的信息；以及

所述计算机程序产品还包括:

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计算机程序代码，可使通信设备通过利用描述流式分量的信息而与通信服务器形成流式传输对话，以便接收流式分量；以及

计算机程序代码，可使通信设备以顺序子部分的形式从通信服务器中接收内容。

通信设备最好为无线通信设备，且最好是移动电话。在另外一个实施例中，无线通信设备是无线通信适配器，可以向外部设备如台式 PC 提供无线通信功能。

根据本发明的第七方面提供了一种通信设备所用的方法，所述方法包括步骤：

从通信服务器中接收通信设备所需的描述消息的信息；

其特征在于，

所述消息包括流式分量；

描述消息的信息包括描述流式分量的信息；以及

所述方法还包括步骤：

通过利用描述流式分量的信息与通信服务器形成流式传输对话，以便接收流式分量；以及

在流式传输对话期间显示流式分量。

根据本发明的一个方面的实施例还可应用于本发明的各个其它方面。简单地说，所有实施例不必重复地与发明的每一方面相关。本领域的技术人员可以在本发明第一方面及其实施例的优点的基础上理解各个其它方面和实施例的优点。

本发明将通过示例并参考附图来进行描述，其中：

图 1 是基于因特网的电子邮件系统的示意图；

图 2 是根据本发明优选实施例的通信系统的图；

图 3 表示了图 2 所示系统的流式数据传送的主协议层；

图 4 表示了根据本发明的优选实施例，在接收器和媒体服务器之间的流式数据传送中发送消息的结构；

图 5 表示了根据本发明的优选实施例，结合于蜂窝无线电话的

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移动通信终端的框图;

图 6 表示了根据本发明另一实施例的用于台式 PC 的无线适配器卡。

在上文中已经介绍了图 1。

接着将简短地概括本发明的优选实施例，然后再参考图 2 到 6 详细地进行介绍。

根据本发明的优选实施例，流式传输结合于多媒体消息服务(MMS)中。在此方面需要进行三个阶段的过程。在第一阶段(阶段 1)中，发送器(发送终端)将多媒体消息，或更准确地说是媒体内容传送给媒体(流式传输)服务器。在第二阶段(阶段 2)中，一个或多个接收器(接收终端)被通知可以接收所传送的媒体内容。在第三阶段(阶段 3)中，媒体内容被传送给接收器。在阶段 2 中进行的通知最好通过由发送器经多媒体消息服务器(MMS)将通知消息发送给接收器来进行。一般来说，MMS 服务器存储通知消息，然后将其转发给接收器。如果转发不成功，它将在晚些时候再发送所存储的通知消息。

流式传输最好在第一和第三阶段中进行，即当上传媒体内容到媒体(流式传输)服务器时和从媒体(流式传输)服务器中下载媒体内容时。应注意的是，上传阶段(阶段 1)中的流式传输不是本发明方法的主要特征。然而，在阶段 1 和 3 中利用流式传输可以减小从发送器中开始传送媒体内容和在接收器中开始进行流式传输之间的延迟。它还具有可减小媒体(流式传输)服务器所需的存储容量的效果，并能有效地在 MMS 中实现实时或接近实时的流式传输。

本方法的阶段 2 可视为消息控制阶段，它涉及通过 MMS 服务器将多媒体消息和与流式传输有关的信息转发给接收器(多媒体消息的目标接收器)。阶段 1 和 2 可顺序地或基本同时地进行，而阶段 3 可以在接收器接收到通知消息时自动地进行，或者是根据接收器用户的意愿晚些时候再进行。因此，本发明提供了接收器可在任何时间播放流式媒体内容的灵活性。优选实施例并没有在媒体内容的大小

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或在多信道传送时接收器的数量方面加以限制。优选实施例是基于存储-转发方法，因此它符合其它 MMS 方法。这就使得任何不能流化或者类型不适于进行流式传输的媒体内容可以通过如当前 MMS 规范中指定的传统方式被下载到接收器中。

本发明的一个优点是流式传输功能的实施可在多方面增强所建议的 MMS，尤其是在媒体内容很大或是在进行多信道传送时。由于在 MMS 中进行流式传输的存储-转发方法使得接收器可以充分灵活地决定是否和何时接收和播放多媒体消息中的媒体内容，因此这种方法是有效的和所希望的。本发明还在所建议的 MMS 的框架中提供了流式传输功能，因此它和现有的 MMS 标准完全兼容。

下文中描述的本发明的实施例将概述在 MMS 中进行流式传输的主要步骤。

图 2 是根据本发明优选实施例的通信系统 20 的图。系统 20 包括发送器 21，具有媒体服务器 22 和 MMS 服务器 23 的 MMS 中心(MMSC)，以及接收器 24。MMSC 还可被视为通信服务器。

在这个多媒体消息流存储方法的示例中，发送器 21 为移动终端，装有视频照相机 25 和可生成要传送给接收器 24 的媒体内容(音频/视频剪辑)的麦克风(未示出)。接收器 24 为移动终端，装有适当的显示软件和可显示媒体内容(音频/视频剪辑)的设备。通常，发送器 21 和接收器 24 是相似的设备，之所以其中之一为发送器 21 而另一个为接收器 24，只是因为它们的角色为发送方和接收方(发送器和接收器)。下面将详细地描述本发明方法的三个阶段。

在阶段 1 中，发送器 21 与媒体(流式传输)服务器 22 之间建立流式传输对话，媒体(流式传输)服务器 22 开始在预定位置存储媒体内容。这个阶段可视为媒体上传阶段。

在阶段 2 中，发送器 21 通过 MMS 服务器 23 发送通知给接收器 24，通知有关被存储的媒体内容。通知包括在接收器 24 和媒体服务器 22 之间建立另一流式传输对话所需的显示描述信息。显示描述信

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息包括但不限于下述数据：媒体服务器的网络地址；存取机制的具体内容，通过存取机制可以从媒体服务器 22 中重新获得媒体内容；将进行流式传输的媒体类型；用于对媒体内容进行编码的编码方法和用于下载媒体的传输协议的指示。

在阶段 3 中，接收器 24 基于所接收的通知消息中的信息而建立与媒体服务器 22 的流式传输对话，接收器 24 开始下载并播放媒体。这个阶段可视为媒体下载阶段。媒体内容按照内容子部分的顺序来下载，各子部分代表流式传输对话的一个时间段。内容子部分可以分成数据信息包，或者一个子部分可包括多于一个数据信息包，这取决于媒体内容的编码类型和数据信息包的支付负荷的大小。

媒体服务器 22 和 MMS 服务器 23 可以合并在一起，或者在网络中保持为不同的实体，取决于控制它们的服务提供器所选择的执行过程。媒体服务器 22 可位于例如移动通信网络中或位于因特网中，可以处于服务提供器的控制下而不负责移动通信网络中服务的提供。

当在阶段 1 和阶段 3 都进行流式传输时，(通知)阶段 2 在(媒体上传)阶段 1 的期间进行，(媒体下载)阶段 3 也可在阶段 1 的期间开始。发送器 21 继续将媒体内容发送给媒体服务器 22，而媒体服务器 22 同时将媒体内容中早先收到的部分发送给接收器 24。接收器开始(且继续)播放媒体内容，其总的延迟取决于流式传输过程、数据传输延迟和阶段 3 开始的时间。如果阶段 3 不是自动地开始而是在提示和接收到接收器 24 的用户的允许时开始，那么总的延误通常大于在接收器 24 接收到通知时就立刻开始阶段 3 的延误。

在另一实施例中，媒体内容已经存储在媒体服务器 22 中，发送器 21 知道媒体内容的显示描述信息。在此情况中可以省略阶段 1。如上所述，媒体内容的流式传输对阶段 1 来说并不重要。例如，阶段 1 的非流式传输方法可以与商用内容提供器所提供的媒体内容结合使用，商用内容提供器例如为位于通信网络如因特网中的新闻内

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容提供器。内容提供器利用非流式传输在 IP 连接上的传送来更新存储在媒体服务器 22 中的媒体内容，并利用根据本发明阶段 2 的通知消息通知媒体内容的潜在接收器关于感兴趣的新剪辑的消息。通知消息的接收者如用户会向特定的内容提供器订阅。在通知消息的基础上，在各个方便的时间，各接收者决定是否与媒体服务器 22 形成流式传输对话，以重新获得由特定内容提供器所提供的新的媒体内容。这还代表了一种多信道传送方法的示例，它利用根据本发明的多媒体消息系统来进行流式传输。

根据本发明的另一实施例，显示描述信息可以存储在除 MMS 服务器 23 或媒体服务器 22 之外的服务器中，如电子邮件或万维网服务器。在此实施例中，发送给接收器 24 的通知消息识别存储了显示描述信息的特定服务器，并用存取机制(HTTP GET, WSP GET, IMAP4, POP3, RSTP DESCRIBE)从那个位置上重新获得显示描述信息。然后，服务器 24 利用指定的存取机制从通知消息所识别的服务器中重新获得显示描述信息。然后，所得的显示描述信息引导服务器 24 调用此方法的阶段 3，以重新获得和播放所存储的媒体内容。如果用于存储显示描述信息的服务器是 MMS 服务器 23，当前的 MMS 方法可以用来直接地重新获得显示描述信息。在这种情况下，从发送器 21 到 MMS 服务器 23 的 MMS 通知携带显示描述信息，显示描述信息存储在 MMS 服务器 23 中。然后，从存储了显示描述的服务器到接收器 24 的通知中携带了所存储的显示描述的位置、服务器地址和其它所需的信息。最后，接收器 24 跟随 MMS 从 MMS 服务器 23 中重新获得显示描述。

因此应该注意的是，在某些情况下，发送器 21 发送给 MMS 服务器 23 的通知消息的信息内容可以和 MMS 服务器 23 发送给接收器 24 的信息内容不同。

根据本发明的优选实施例，如果发送器 21 和接收器 24 处于不同的相互连接的 MMS 服务器的管理下(即它们具有不同的“服务”

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制层 31,32 提示给媒体传输层 33。在优选实施例中，媒体流式传输控制根据媒体传输层 33 所通知的数据传输通道来适应流式传输。

图 4 表示了根据本发明的优选实施例，在流式媒体内容下载期间接收器 24 和 MMSC(或媒体服务器 22)之间发送的不同控制消息的结构。它表明了当利用 RTP/RTCP 作为传输协议时，利用 RTSP 对话在接收器 24 中播放媒体剪辑的信息流。这就给出了可用于在本发明的阶段 3 中下载媒体剪辑的方法的一个示例。下面将说明发送给接收器 24 的控制消息。

接收器 24 要求得到它在阶段 2 中已被通知的媒体内容。接收器 24 将用于建立流式传输的 RTSP 建立信息(41)发送给 MMSC，并接收相应的确认(41_ACK)。然后接收器 24 将 RTSP 播放指令消息(42)发送给 MMSC，并接收相应的确认(42_ACK)。MMSC 响应此播放指令，根据所发送的多媒体消息开始将 RTP 音频(43)和 RTP 视频(44)内容发送给接收器 24。接收器 24 可通过 RTCP 消息(45)控制 MMSC 发送媒体内容。一旦接收器 24 的用户希望暂停内容的流式传输下载，他或她可请求暂停流式传输，作为响应，接收器将 RTSP 暂停消息(46)发送给 MMSC，并接收相应的确认(46_ACK)。响应此 RTSP 暂停消息，MMSC 暂停发送媒体内容(RTP 音频和 RTP 视频)。接着，接收器 24 将 RTSP 拆卸消息(teardown message)(47)发送给 MMSC 来停止 RTP 对话，允许在迟些时候再继续进行流式传输。MMSC 将相应的确认消息(47_ACK)发送回接收器 24。

通过用 RECORD 代替 PLAY 指令，可以实现与本发明的阶段 1 中媒体上传相似的对话，其中在接收器 24 的位置上应为发送器 21。

消息控制功能要求能进行端对端通知，这是因为如先前所述，接收器 24 要求与媒体内容有关的一定信息能进行流式化，以便加入到流式传输对话中。根据当前的 MMS 规范，描述媒体内容的信息与媒体内容本身封装在一起，因此无法独立地发送给接收器 24。在没有此信息时，接收器 24 无法通过流式传输来下载媒体内容。通过提

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多媒体服务器)，通知消息可在 MMS 服务器之间的连接中传送。对于任何端对端通知来说，在服务 MMS 服务器之间可以连接在一起的服务器的数量不受限制。

在因特网域中存在着用于流式传输控制和媒体传输的现有协议。因此阶段 1 和 3 可以基于这些现有协议来执行。在这种方式中，由本发明提供的方法还可保证与因特网的交互工作，这也是当前MMS标准的一个重要目的。阶段 2 符合现有的 MMS 标准，因此可以提供与先前建议的机制之间的向后兼容性，以下载非流式的媒体内容。

下面将通过示例来说明用于完成本发明优选实施例的不同阶段的一些实用方法。

实时流式传输协议(RTSP)是客户-服务器流式传输控制协议，可实现流式多媒体数据在 IP 网络上的可控制的传送。它是一个应用级的协议，可以与传输控制协议(TCP)或用户数据报文协议(UDP)一起使用。RTSP 提供了使用 RTP(实时传输协议)/UDP 或任何其它的低级协议范围以用于媒体传输。RTSP 包括一套控制流式音频和/或视频的方法/指令。在此方面最有用的方法/指令是 OPTIONS, DESCRIBE, ANNOUNCE, SETUP, PLAY, PAUSE, TEARDOWN, REDIRECT 和 RECORD。媒体上传和下载可以利用 SETUP,PLAY,RECORD, PAUSE 和 TEARDOWN 来执行。

超文本传输协议(HTTP)还可用于通过将 TCP 用作传输协议来实现和控制本发明的媒体内容的上传和下载。HTTP 具有对应于 RTSP 中 RECORD 和 PLAY 的方法/指令 PUT 和 GET，可用于媒体的上传(阶段 1)和下载(阶段 3)。

UDP 是无连接的轻量级的传输协议，可提供较短等待时间的通信。RTP 特地为实时通信而设计，执行 RTP 使得它可提供位于 UDP 上层的数据信息包的时间标记和顺序号。多信道传送可利用 RTP 进行。RTP 还设计用于与辅助控制协议 RTCP(实时控制协议)结合使用，以得到有关数据传输的质量和正在进行的对话中的参与者信息的反

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馈。RTP 和 RTCP 一起可提供用于携带实时内容所需的功能和控制机制，因此可实现媒体内容的流式传输，从而可以与本发明结合使用。

TCP 是面向连接的传输协议。与 UDP 相比，它以增加等待时间和更多管理费用为代价来保证数据信息包的准确和顺序的接收。在 TCP 中不能使用多信道传送，但如果初期缓冲时间不重要以及将进行流式化的媒体剪辑相对较短的话，TCP 可以用于流式传输应用中。

在流式传输控制和媒体传输层的上层需要具有消息控制功能，以将流式传输结合于 MMS 中。图 3 表示了根据图 2 的流式数据传输系统的主协议层。消息控制层 31 提供消息发送功能的全面控制。例如在发送器 21 中，消息控制层 31 负责将媒体内容装配到多媒体消息中，并形成包括有描述媒体内容的信息的通知消息，通知消息然后又被发送给所需的接收器 24。在接收器 24 中，消息控制层 31 负责解释所接收到的通知消息，抽取与将进行流式传输的媒体内容的位置有关的信息以及形成流式传输对话所必需的信息，以重新获得媒体内容。消息控制层 31 还负责控制任何不能进行流式传输和/或根据现有 MMS 不适于流式传输的媒体内容的传输和接收。

流式传输层 32 由消息控制层 31 控制。它负责根据消息控制层 31 提供的信息或各媒体类型所预定的规则来对各种要进行流式传输的媒体内容形成流式传输对话。它还负责一旦建立了流式传输对话就控制/调节媒体内容的流式传输。在发送器 21 中，流式传输层 32 负责将媒体内容流式上传到媒体服务器 22 中，相反地，在接收器 24 中，它负责控制从媒体服务器 22 流式下载媒体内容。或者，在媒体服务器 22 中可在这样的情况下提供流式传输控制功能，即在阶段 1 和 3 中进行流式传输，使得在发送器 21 和接收器 24 之间可提供实时或接近实时的媒体内容的流式传输。媒体传输层 33 利用适当的传输协议来处理数据的实际传输。可以为不同媒体类型预先确定协议选择，或者根据通知消息中的信息，通过消息控制层和流式传输控

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供媒体显示信息的分开的端对端通信，根据本发明的方法可以将其所需的信息提供给接收器 24，以便通过流式传输来下载媒体内容。此外，现有的非流式传输 MMS 协议的范围可允许利用端对端消息经由 MMS 服务器来进行媒体显示信息的通信，使得根据本发明的方法与当前的 MMS 标准兼容。

RTSP 被认为是在阶段 1 和 3 中实现和控制流式传输的最佳模式。如果用 RTP/UDP 或 TCP 作为媒体传输协议，在性能上需要进行一定程度的折衷。特别是，由于 TCP 是面向连接的协议，利用 TCP 来完成的话不能提供多信道传送功能。然而，TCP 代表着能与本发明结合使用的另一种可行的媒体传输协议。实际上，其面向连接的特性在某些情况下具有优点，尤其是在需要更安全的流式传输时。根据本发明的优选实施例，现有的 MMS 协议用于在阶段 2 中从发送器 21 经由 MMSC 将显示描述信息的端对端通知提供给接收器 24。

图 5 表示了结合于蜂窝无线电话的移动终端 50(可以是发送器 21 或接收器 24)的框图。移动终端 50 包括显示屏 51，用于传送和接收无线电信号的收发器 52，用于处理无线电信号与数据和声音的数字信号的相互转换的处理器(DSP)53，用户输入装置如小键盘或键盘 54，由软件控制操作的中央处理单元 55。移动终端 50 还包括用于存储数据和软件的存储器 56。存储器可供 DSP53 和 CPU55 使用。软件包括操作系统和可控制移动终端 50 的操作并提供一定功能的应用软件，如 MMS。移动终端 50 还包括可拆卸的智能卡，例如用于用户识别的 SIM 卡 57。存储器 56 专门用于存储应用软件的部分是所谓的永久存储器，其即使在移动终端 50 的能量供应耗尽时也能保存内容。应用软件可以任何已知的现有技术存储，包括工厂安装，从个人计算机中存取并通过无线下载，例如从通信网络的服务器。所有的这些技术均可从 Nokia®9110 通信装置中得知。

图 6 表示了根据本发明一个实施例的用于台式 PC62 的无线适配卡 61，它可以用作发送器 21 或接收器 24。无线适配卡安装在台式 PC62

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的 PCMCIA 槽中(PCMCIA，个人计算机存储卡国际联盟)。

虽然在上文中所描述的本发明是其在至少部分网络包括无线通信连接的通信网络中的应用，但应强调的是它的应用决不限于这种网络。本发明也可同样适用于网络中各个装置(发送器 21，接收器 24 和网络服务器)之间的物理连接是部分或全部地通过固定线路连接而实现的网络中。

本发明所涉及的不同实施例的服务器和终端如 MMSC、发送器 21 和接收器 24 的操作最好由计算机程序产品控制，它可使这些实体按照本发明的要求来操作。

上文中已经介绍了本发明的特殊执行过程和实施例。对于本领域的技术人员来说，很明显本发明并不限于上述实施例的细节，在不脱离本发明特征的前提下可以在利用等效装置的其它实施例中执行。本发明的范围只由所附的专利权利要求限制。

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先有技术

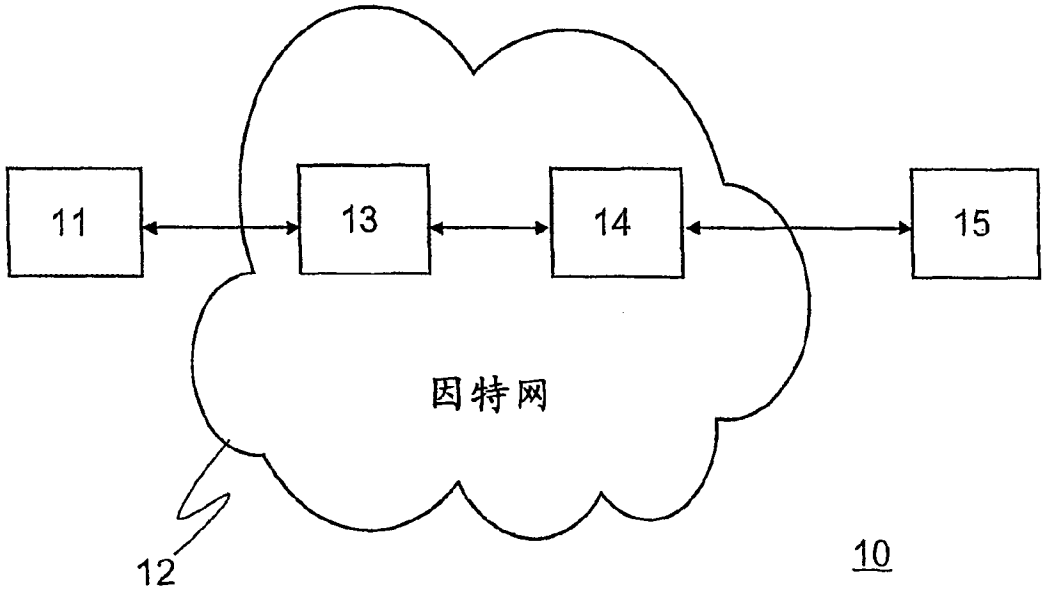


图 1

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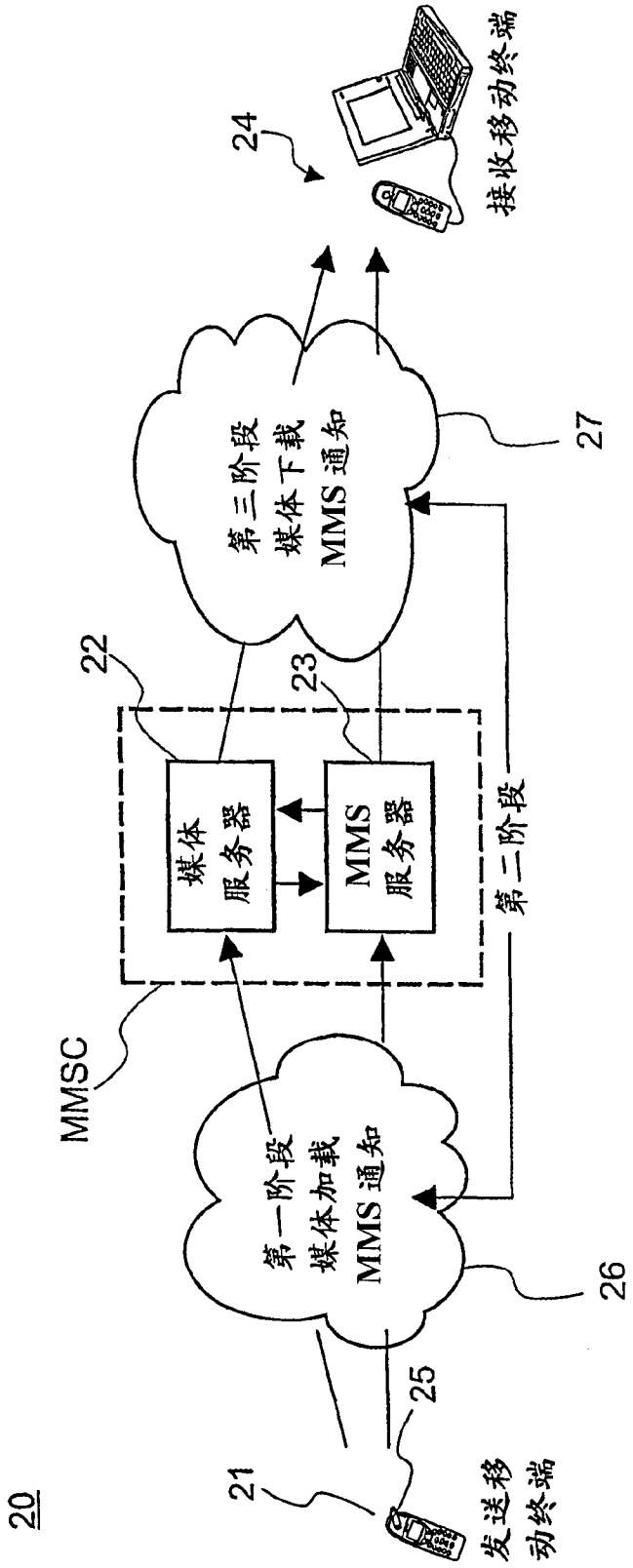


图 2

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图 3

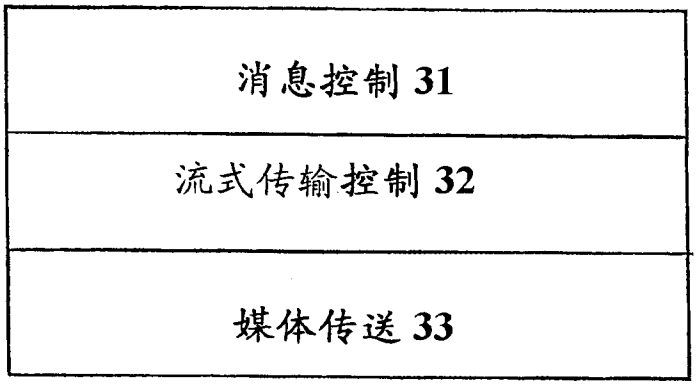
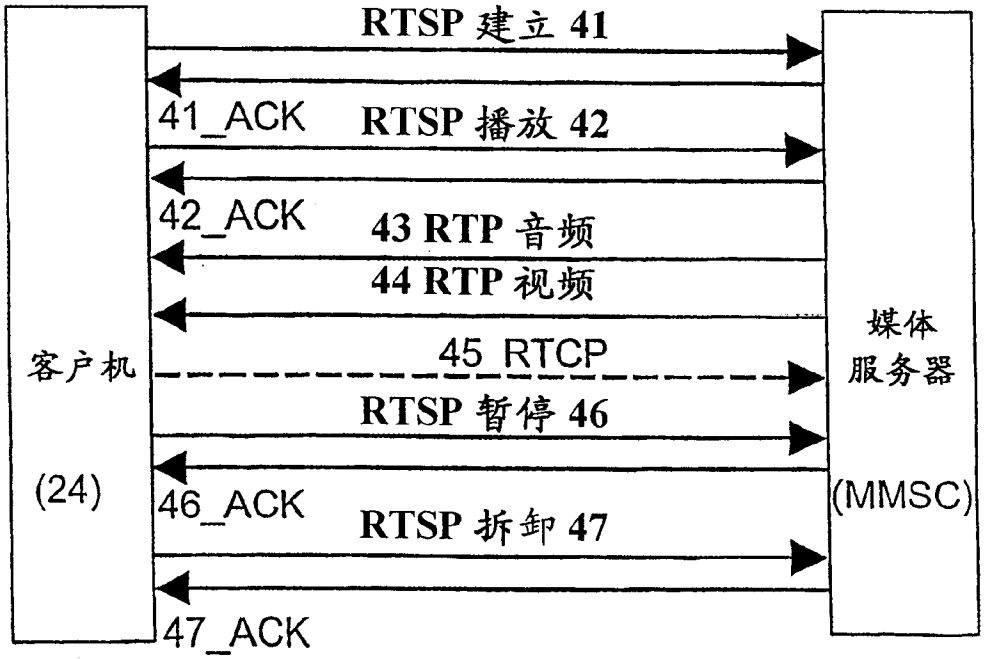


图 4



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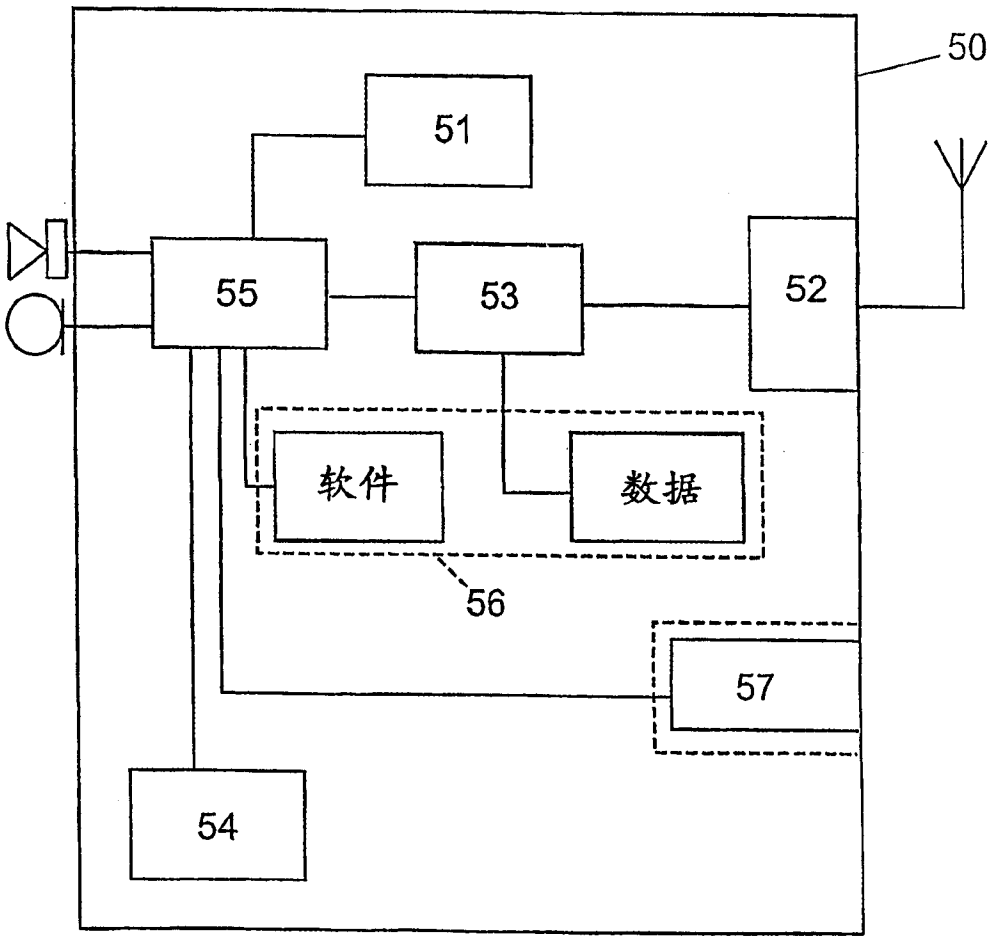


图 5

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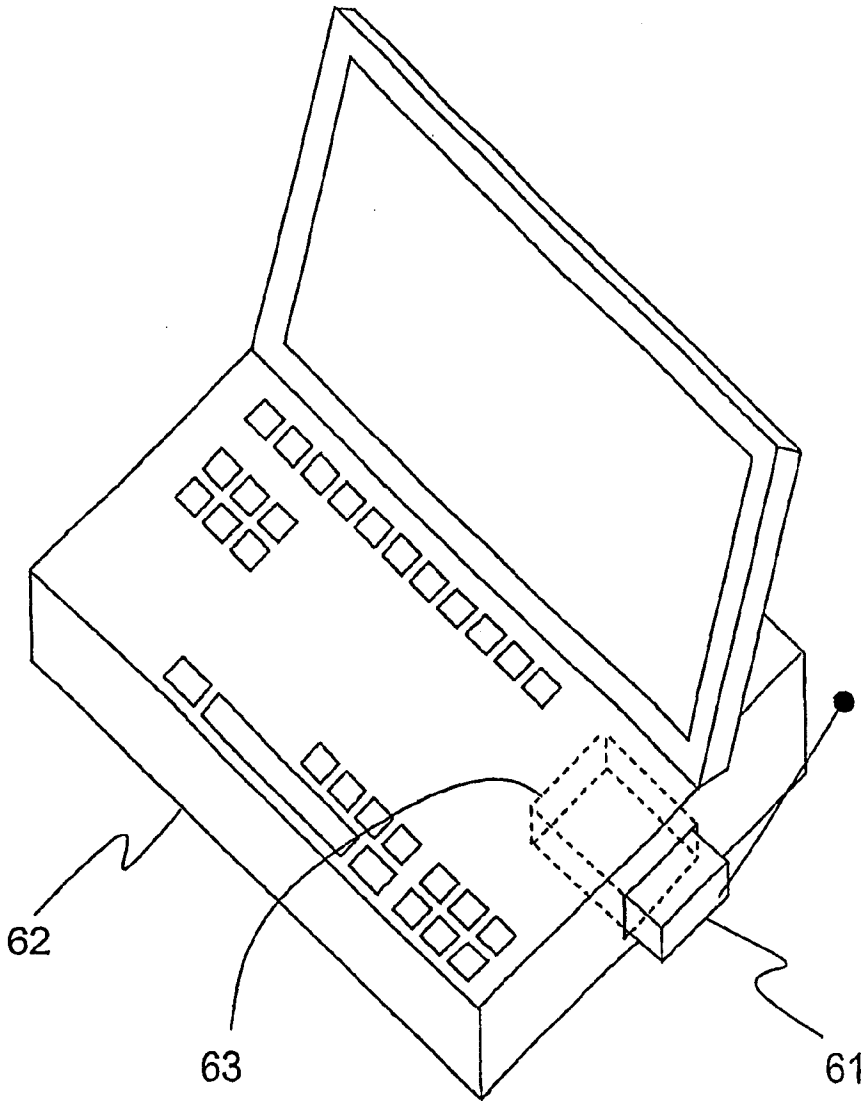


图 6

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Patents CN1947401A

System and method for establishing a session initiation protocol communication session with a mobile terminal

Abstract

A system is provided for establishing a communication session with a terminal (i.e., terminating SIP client). The system includes a network node (e.g., SIP proxy) located in a network across which an originating client is capable of communicating. The network node is capable of sending a trigger to the terminal independent of the network. The network node is also capable of receiving a registration message, in response to the trigger, from the terminal across the network. In this regard, the network node is capable of receiving the registration message to thereby identify the terminal across the network such that a communication session is capable of being established with the terminal based upon the identity of the terminal across the network.

Classifications

- H04L12/66 Arrangements for connecting between networks having differing types of switching systems, e g. gateways

View 12 more classifications

CN1947401A

China

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Other languages: Chinese

Inventor: [redacted]

Current Assignee : Nokia Oyj

Worldwide applications

2004 US 2005 EP JP WO CN

Application CNA2005800129083A events

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2007-04-11	Publication of CN1947401A
2010-11-10	Application granted
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Status	Expired - Fee Related
2025-03-07	Anticipated expiration

Info: Patent citations (32), Cited by (79), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Claims (54)

Hide Dependent

1. system that is used for setting up communication session with terminal, described system comprises:

Be arranged in the network node of network, initiating client can communicate via described network, wherein said network node can receive connection request, and the described terminal to the position that is independent of described initiation client sends triggering then, wherein said network node also can receive in response to the registration message of described triggering and register described terminal to described network node then, and via the described terminal of described Network Recognition, so that can set up described communication session via described network with described terminal based on the sign of described terminal.

2. according to the system described in the claim 1, wherein said network node can receive the connection request from described initiation client, and wherein said network node can send described connection request to described terminal after the described terminal of registration.

3. according to the system described in the claim 2, wherein said network node can send described connection request to described terminal by at least one other network node.

4. according to the system described in the claim 1, wherein said network node comprises the Session Initiation Protocol agency.

5. according to the system described in the claim 1, wherein said network node can receive and after this store described connection request in buffer, and wherein said network node can receive described registration message and retrieve described connection request from described buffer then, and sends described connection request via described network to described terminal based on the described sign of described terminal.

6. according to the system described in the claim 1, wherein said network node can be by the network address translater (NAT) between described network node and described terminal and at least one in the fire compartment wall (FW), reception is from the described registration message of described terminal, and wherein said network node can send described triggering at least one the mode that is independent of among described NAT and the FW.

7. according to the system described in the claim 1, wherein said network node also can be before sending described triggering, reception is from first registration message of described terminal, to register described terminal to described network node, wherein said first registration message comprises the described identifiers of terminals that is independent of described network, make described network node to send described triggering, and wherein said network node can receive follow-up registration message in response to described triggering based on the described identifier of the described terminal that is independent of described network.

8. according to the system described in the claim 1, wherein said network node is arranged in network, initiates at least a in can directly or indirectly communicating by letter via described network of client.

9. the system described in according to Claim 8, wherein said network comprises one of public and private network.

10. set up the system of communication session with terminal for one kind, described system comprises:

Be arranged in the network node of network, initiating client can communicate via described network, wherein sip agent can receive registration message, to register described terminal to described sip agent then, wherein said registration message comprises the described identifiers of terminals that is independent of described network, wherein said network node can be based on the described identifier of described terminal, triggering is independent of the described terminal of described network, with then via the described terminal of described Network Recognition, so that can set up described communication session via described network with described terminal based on the sign of described terminal.

11. according to the system described in the claim 10, wherein said network node can receive the connection request from described initiation client, wherein said network node can trigger described terminal in response to receiving described connection request, and wherein said network node can send described connection request to described terminal after via the described terminal of described Network Recognition.

12. according to the system described in the claim 11, wherein said network node can send described connection request to described terminal by at least one other network node.

13. according to the system described in the claim 11, wherein said network node can receive and store then described connection request in buffer, and wherein said network node can retrieve described connection request and send described connection request via described network to described terminal based on the described sign of described terminal then from described buffer, to set up described communication session then.

14. according to the system described in the claim 10, wherein said network node comprises the Session Initiation Protocol agency.

15. according to the system described in the claim 10, wherein said network node can be by the network address translater (NAT) between described network node and described terminal and at least one in the fire compartment wall (FW), reception is from the described registration message of described terminal, and wherein said network node can trigger described terminal at least one mode that is independent of among described NAT and the described FW.

16. according to the system described in the claim 10, wherein said network node can receive first registration message, to register described terminal to described network node then, wherein said network node also can be in response to the triggering to described terminal, reception is from the follow-up registration message of described terminal, with then via the described terminal of described Network Recognition, and wherein said network node can be via the described terminal of described Network Recognition, so that can set up communication session via described network with described terminal based on the described sign of described terminal.

17. according to the system described in the claim 10, wherein said network node is arranged in network, initiates at least a in can directly or indirectly communicating by letter via described network of client.

18. according to the system described in the claim 17, wherein said network comprises one of public and private network.

19. set up the method for communication session with terminal for one kind, described method comprises:

Send triggering from the network node that is arranged in network to described terminal, initiating client can communicate via described network, wherein sends described triggering and comprises that transmission is independent of the described triggering of described network;

In response to described triggering, at described network node place, receive registration message, to register described terminal and via the described terminal of described Network Recognition to described network node then from described terminal via described network; And

Described sign based on described terminal is set up communication session via described network with described terminal.

20. the described method according in the claim 19 also comprises:

Receive connection request at described network node place, after wherein setting up communication session and being included in the described terminal of registration, send described connection request to described terminal from described initiation client.

21., wherein send described connection request and comprise by at least one other network node and send described connection request to described terminal from described network node according to the method described in the claim 20.

22. according to the method described in the claim 20, wherein receiving connection request comprises reception and store connection request then in buffer, and wherein set up communication session and comprise from described buffer and retrieve described connection request, and send described connection request via described network to described terminal based on the described sign of described terminal then.

23., wherein send triggering to described terminal and comprise from comprising that the network node that Session Initiation Protocol is acted on behalf of of sends triggering to described terminal from network node according to the method described in the claim 19.

24. according to the method described in the claim 19, wherein receiving registration message comprises by the network address translater (NAT) between described network node and described terminal and at least one in the fire compartment wall (FW), at the registration message of described network node place reception from described terminal

And wherein send to trigger at least one the mode that comprises to be independent of among described NAT and the FW and send triggering.

25. according to the method described in the claim 19, wherein receive registration message and comprise the follow-up registration message of reception, wherein said method also comprises:

At first registration message of described network node place reception from described terminal, to register described terminal to described network node then, wherein said first registration message comprises the described identifiers of terminals that is independent of described network before sending triggering, and

Wherein send and trigger the described identifier transmission triggering that comprises based on the described terminal that is independent of described network.

26. according to the method described in the claim 19, wherein send to trigger to described terminal and comprise sending to described terminal and trigger, initiate at least a in can directly or indirectly communicating by letter via described network of client from the network node that is arranged in network from network node.

27., wherein trigger the network node that comprises from being positioned at one of public and private network to described terminal transmission and send triggering to described terminal from network node according to the method described in the claim 26.

28. set up the method for communication session with terminal for one kind, described method comprises:

Receive registration message at the network node place that is arranged in network, initiating client can communicate via described network, wherein receive described registration message and comprise and receive described registration message registering described terminal to described network node then, and wherein said registration message comprises the described identifiers of terminals that is independent of described network; And

Trigger described terminal with then via the described terminal of described Network Recognition, wherein trigger described terminal and comprise that the described identifier triggering based on described terminal is independent of the described terminal of described network, so that can set up communication session via described network with described terminal based on the sign of described terminal

29. the method according to described in the claim 28 also comprises:

Receive from the connection request of initiating node at described network node place; And

After via the described terminal of described Network Recognition, send described connection request to described terminal from described network node.

30. according to the method described in the claim 29, wherein send described connection request and comprise, send described connection request to described terminal from described network node by at least one other network node.

31. according to the method described in the claim 29, wherein receiving connection request comprises reception and store connection request then in buffer, and wherein send described connection request and comprise from described buffer and retrieve described connection request, and send described connection request via described network to described terminal based on the described sign of described terminal then, to set up described communication session then.

32., wherein receive registration message and be included in the network node place reception registration message that comprises the Session Initiation Protocol agency at the network node place according to the method described in the claim 28.

33. according to the method described in the claim 28, wherein receiving registration message comprises by the network address translater (NAT) between described network node and described terminal and at least one in the fire compartment wall (FW), at the registration message of network node place reception from described terminal

And wherein trigger described terminal and comprise that at least one the mode to be independent of among described NAT and the described FW triggers described terminal.

34. according to the method described in the claim 28, wherein receive registration message and comprise reception first registration message, wherein said method also comprises:

In response to triggering described terminal, at described network node place, receive follow-up registration message, with then via the described terminal of described Network Recognition from described terminal; And

Set up communication session based on the described sign of described terminal via described network with described terminal.

35. according to the method described in the claim 28, wherein receive registration message and be included in the network node place that is arranged in network and receive registration message, initiate at least a in can directly or indirectly communicating by letter via described network of client at the network node place.

36., wherein receive registration message and be included in the network node place reception registration message that is arranged in the network that comprises one of public and private network at the network node place according to the method described in the claim 35.

37. a terminal comprises:

Can receive controller from the triggering of the network node that is arranged in network, initiating client can communicate via described network, wherein said controller can receive the described triggering that is independent of described network, wherein said controller can be in response to described triggering, send registration message via described network to described network node, to register described terminal and via the described terminal of described Network Recognition, so that can set up communication session via described network with described terminal to described network node then based on the sign of described terminal.

38. according to the terminal described in the claim 37, wherein said controller can receive from the connection request of described initiation node in response to described network node and receive described triggering, makes described network node to send described connection request to described terminal after the described terminal of registration.

39. according to the terminal described in the claim 38, wherein said controller can receive from the connection request of described initiation node in response to described network node and receive described triggering, makes described network node to send described connection request to described terminal by at least one other network node.

40. according to the terminal described in the claim 38, wherein said controller can in response to described network node receive and then in buffer storage receive described triggering from the connection request of described network node, and wherein said controller can send described registration message, make described network node to retrieve described connection request, and send described connection request via described network to described controller based on the described sign of described terminal then from described buffer.

41. according to the terminal described in the claim 37, wherein said controller can receive the triggering from the network node that comprises the Session Initiation Protocol agency.

42. according to the terminal described in the claim 37, wherein said controller can send described registration message to described network node by the network address translater (NAT) between described network node and described terminal and at least one in the fire compartment wall (FW), and wherein said controller can receive described triggering at least one the mode that is independent of among described NAT and the described FW.

43. according to the terminal described in the claim 37, wherein said controller also can send first registration message to described network node before receiving described triggering, to register described terminal to described network node then, wherein said first registration message comprises the described identifiers of terminals that is independent of described network, so that described controller can receive described triggering based on the described identifier of the described terminal that is independent of described network, and wherein said controller can send follow-up registration message in response to described triggering.

44. according to the terminal described in the claim 37, wherein said controller can receive the triggering from the network node that is arranged in network, initiates at least a in can directly or indirectly communicating by letter via described network of client.

45. according to the terminal described in the claim 44, wherein said controller can receive the triggering from the network node that is arranged in the network that comprises one of public and private network.

46. a terminal that is arranged in one of mobile network and dedicated network, described terminal comprises:

Can send the controller of registration message to the network node that is arranged in network, initiating client can communicate via described network, wherein said controller can send described registration message, to register described terminal to described network node then, wherein said registration message comprises the described identifiers of terminals that is independent of described network, and wherein can be independent of the described controller of described network-triggered based on the described identifier of described terminal, with then via the described terminal of described Network Recognition, so that can set up communication session via described network with described terminal based on the sign of described terminal.

47. according to the terminal described in the claim 46, wherein the connection request that receives from described initiation client in response to described network node can trigger described controller, and wherein can trigger described controller, so that after via the described terminal of described Network Recognition, described network node can send described connection request to described terminal.

48. according to the terminal described in the claim 47, wherein can trigger described controller, make described network node to send described connection request to described terminal by at least one other network node.

49. according to the terminal described in the claim 47, wherein receive and in buffer, store described connection request then and can trigger described controller in response to described network node, and wherein can trigger described controller, so that described network node can be retrieved described connection request from described buffer, and send described connection request via described network to described terminal based on the described sign of described terminal then, to set up described communication session then.

50. according to the terminal described in the claim 46, wherein said controller can send registration message to the network node that comprises the Session Initiation Protocol agency.

51. according to the terminal described in the claim 46, wherein said controller can be by the network address translater (NAT) between described network and described terminal and at least one in the fire compartment wall (FW), send described registration message to described network node, and wherein can trigger described controller at least one mode that is independent of among described NAT and the described FW.

52. according to the terminal described in the claim 46, wherein said controller can send first registration message, to register described terminal to described network node then, wherein said controller also can send follow-up registration message to described network node in response to being triggered,, make it possible to set up communication session via described network with described terminal via the described terminal of described Network Recognition with then based on the described sign of described terminal.

53. according to the terminal described in the claim 46, wherein said controller can send registration message to the network node that is arranged in network, initiates at least a in can directly or indirectly communicating by letter via described network of node.

54. according to the terminal described in the claim 53, wherein said controller can send registration message to the network node that is arranged in the network that comprises one of public and private network.

Description

Be used for setting up the system and method for Session initiation Protocol communication session with portable terminal

Technical field

The present invention relates in general to the system and method that is used for setting up according to Session initiation Protocol communication session, and relates more particularly to be used for setting up with terminal the system and method for SIP communication session.

Background technology

Such as one of restriction of the various version of the Internet protocol (IP) of IPv4 is that it has limited address space.Thereby for preserving the address, enterprise and other management domains have been sought help from and have been used the specific address.The specific address is the network address, and IP address wherein falls into following scope:

10.0.0-10.255.255.255,

172.16.0.0-172.31.255.255, perhaps

192.168.0.0-192.168.255.255.

The specific address of being distributed by the management entity in the dedicated network only has relevance in corresponding dedicated network.Thereby this specific address is invisible in this dedicated network outside usually.Yet using the benefit of specific address is in they corresponding dedicated network inside, and different dedicated networks can not cause any conflict for the identical private ip address of host assignment.On the other hand, the network address translater (NAT) that also can be used as network address port translator (NAPT) can attempted to use when the main frame of the dedicated network outside that is positioned at this transmission main frame sends IP datagram when being positioned at the main frame that dedicated network has been assigned with the specific address.When to the dedicated network that is associated with NAT is outside send IP datagram before, NAT is converted to public ip address with private ip address (and other the selecteed fields in this datagram) possibly.The function of utilizing NAPT to add, NAT can also be from the port of dedicated network to public network conversion such as transmission control protocol (TCP) or User Datagram Protocol (UDP) (UDP) port.Similarly, when from the main frame of the outside of this management domain that is associated with this NAT when the main frame of band specific address sends datagram, then, this NAT is converted to private ip address with public ip address, and, be port in the dedicated network with the port translation in the public network with the function that NAPT added.

Providing outside address and the port translation, NAT can be with communicating as fire compartment wall and/or gateway that the security mechanism of associated dedicated network is turned round.In this, this firewall/gateway can so turn round so that fail safe to be provided: flowing into datagram by before the conversion process

of this NAT, and/or flowing out datagram by after the conversion process of this NAT, this firewall/gateway can limit such datagram.In addition, by private ip address is converted to public ip address, NAT can be for providing secrecy provision with private ip address association person.

Use the specific address in dedicated network inside, and use NAT in enterprise, to accept extensively and adopt at the dedicated network edge.Yet there is shortcoming in the use that is associated with NAT.In this, think that dedicated network comprises, be connected to or otherwise associated mobile network, such as GPRS (GPRS) network.In the case, communicate via this mobile network, can for example send out usually such as the terminal node of portable terminal and to open the communication session with this IP device via this NAT according to Session Initiation Protocol.Yet IP device can not be sent out with terminal node via this NAT usually and open similar SIP communication session.In addition, because terminal node lacks static state and the public sign as fixed ip address usually, IP device can not be discerned desired terminal node to NAT usually.

Owing to multiple reason, usually to prevent that IP device from sending out the mode that opens the SIP communication session with terminal node separately the mobile network is configured.At first, depend on network topology,, can consume the resource or the reduction network performance of undesirable quantity to the IP connection of terminal node in the support of network internal even on this network, do not have in the IP traffic.The second, in the network the same with many dedicated networks, terminal node may be more than the IP available address.Thereby this network may comprise the NAT of distributing IP address dynamically and/or private ip address.The 3rd, the fail safe of many networks needs and strategy requires to prevent that the multiple IP traffic from importing this network into.Such situation also causes the use of NAT usually, especially when this mobile network comprises the firewall/gateway that is associated.

These shortcomings that overcome NAT open the SIP communication session to allow IP device to send out to terminal node, network configuration can be had unique, fixed IP addresses for each terminal node, wherein import these addresses to domain name system (DNS) server separately.With the NAT of this network and other safety components (for example, firewall/gateway etc.) also be configured to allow IP device to send out and open the SIP communication session to terminal node, and allow subtend distribute to terminal node the IP address the traffic and from the route of the traffic of the IP address of distributing to terminal node.In addition, for example, when terminal node is connected to this network, the network technology private resource that can distribute the IP of each terminal node of the network that need be used for coexisting to connect.

Yet this permission IP device is sent out the restriction that the technology that opens the SIP communication session has been ignored the public network of the use that causes the NAT parts to terminal node.That is to say that this technology has been ignored the restriction of available public IP address.Equally, this technology has also been ignored the ability with the NAT parts of the firewall/gateway communication that security functionality is provided.Thereby, need design a kind of can allow IP device to moving or dedicated network in terminal node send out the system that opens the SIP communication session, it solves limited public network address space and to corresponding network operation fire compartment wall and/or gateway functionalities.

Summary of the invention

According to aforementioned background, embodiments of the present invention provide the improved system and method that is used for setting up with terminal the Session Initiation Protocol communication session, and this terminal normally has the portable terminal of the private ip address that is associated.Compare with the conventional art that is used for setting up with terminal the SIP communication session, embodiments of the present invention allow the SIP client to send out the SIP communication session that opens with this terminal from this terminal (another SIP client) via public network.More particularly, embodiments of the present invention allow the SIP client to send out with this terminal in one way and open the SIP communication session, the limited quantity of the available public ip address that this mode solves, and be that the mobile network who comprises this terminal safeguards fire compartment wall and/or gateway function.

According to an aspect of the present invention, provide the system that is used to set up same terminal (that is, stopping the SIP client) such as the communication session of Session Initiation Protocol communication session.This system comprises the network node such as sip agent that is arranged in network, and initiating client can communicate via this network.This network node can send to the terminal that is independent of network and trigger.This network node also can receive registration message from this terminal, and such as the registration message after first registration message, wherein, network node triggers in response to this and receives this registration message.In this, this network node can receive this registration message, to register this terminal to this network node and via this terminal of this Network Recognition, to make and can set up communication session via network with this terminal according to the sign of this terminal.

More particularly, network address translation (nat) that this network node can be by between this network node and terminal and/or fire compartment wall (FW) receive the registration message from this terminal.Like this, this network node can send this triggering in the mode that is independent of NAT and/or FW.This network node also can receive first registration message from this terminal before sending triggering and receiving follow-up registration message.In this, this network node can receive this first registration message to register this terminal to this network node.In the case, first registration message comprises this identifiers of terminals that is independent of network.Like this, this network node can send based on this identifier of this terminal that is independent of network and trigger.

This system can also comprise the network node (that is, initiating the SIP client) that can send connection request to this network node.In the case, this network node can send triggering in response to the connection request that is received.More particularly, this network node can receive, and thereby cushions this connection request.Thereby this network node can receive this registration message; From buffer, obtain this connection request; And send connection request via network to this terminal based on this identifiers of terminals then.

According to a further aspect in the invention, be located on terminal in mobile network or the dedicated network and set up the system of communication session and comprise and to receive for example network node of the registration message of first registration message, to register this terminal to this network node then.In this, this registration message comprises this identifiers of terminals that is independent of network.The network node of this execution mode also can trigger this terminal that be independent of network based on this identifiers of terminals, with via this terminal of Network Recognition.In addition, this network node can trigger this terminal, makes to set up communication session via network with this terminal based on this identifiers of terminals.

According to other aspects of the invention, provide terminal and the method that is used for setting up communication session with terminal.Therefore, embodiments of the present invention provide the improved system and method that is used for setting up with terminal communication session.Embodiments of the present invention allow the initiation client to send out with terminal and open connection, and do not need one or more extra public ip addresses.Embodiments of the present invention also allow to initiate client and send out the connection of opening with terminal, and need not get around otherwise for example offered the mobile network's who comprises this terminal fire compartment wall and/or gateway function by FW.Therefore, the system and method for embodiments of the present invention has solved the problem that is caused by prior art and extra advantage is provided.

Description of drawings

So described the present invention with common term, referring now to accompanying drawing, it needn't be drawn in proportion, wherein:

Fig. 1 is the communication system schematic block diagram according to one embodiment of the present invention, comprises public network and mobile network, and by these networks, two-way directly or indirectly connection is initiated the SIP client and stopped the SIP client;

Fig. 2 is according to the embodiment of the present invention, the schematic block diagram of the entity that can turn round as the SIP client,

Fig. 3 is according to the embodiment of the present invention, can be used as the SIP client and the schematic block diagram of the travelling carriage that turns round;

Fig. 4 is according to the embodiment of the present invention, more particularly shows such as the control flow chart of the SIP client that stops the SIP client to the sip agent process registration; And

Fig. 5 is according to the embodiment of the present invention, more particularly shows at the control flow chart of initiating and stop sending out between the SIP client method of unblank letter session.

Embodiment

More completely describe the present invention hereinafter referring now to accompanying drawing, preferred implementation of the present invention has been shown in the accompanying drawing.Yet, can implement the present invention with multiple different form, and should not be limited to the execution mode of illustrating herein; But, these execution modes are provided, make that the disclosure is thorough and complete, and to the complete reception and registration of those skilled in the art scope of the present invention.Run through in full the unit that identical digitized representation is identical.

Referring to Fig. 1, provide one type the explanation that will have benefited from system of the present invention.Together with mobile communication application, the system and method for embodiments of the present invention is described mainly.Yet should be appreciated that, the system and method for embodiments of the present invention can together with the mobile communication industry inside and outside the two multiple other application and be used.

As shown in the figure, system 10 comprises public network 12, such as public the Internet protocol (IP) network as the Internet.Public network comprises a large amount of network nodes, and wherein each comprises the processing unit such as server computer, personal computer, laptop computer etc. usually.More particularly, public network can comprise one or more network nodes that comprise fixed terminal 14, and wherein each can communicate in public network inside or via public network.The network node of public network 12 also can comprise the agency 16 such as the Session Initiation Protocol agency.Should be understood that, such as the call model of SIP provide relate to Multimedia session (referring to, for example, the IETF in June, 2002 request explanation document RFC 3261, title is: SIP.Session initiationProtocol, its content is all introduced the present invention by reference herein.) the application layer signaling protocol.This sip agent thereby can receive and transmit the SIP signaling message such as whereabouts and/or from the SIP signaling message that comprises the network node of the fixed terminal of running as initiating SIP client 20, and is described in more detail below.

In addition, public network 12 can comprise one or more domain name systems (DNS) server 18.In this, each network node has usually to be associated with and benefits the unique ip address that the main frame dns name remembered claims usually.Thereby this dns server can claim the main frame dns name to be converted to the IP address that is associated, and makes Internet traffic can be routed to suitable network node.

Except public network 12, system 10 comprises one or more dedicated networks 24 such as Local Area Network.Each dedicated network, the same with public network, can comprise a large amount of network nodes.Equally, as public network 12, the network node of each dedicated network can comprise one or more dns servers 26.The same Noodles seemingly, the dns server of dedicated network can claim the main frame dns name to be converted to the IP address that is associated, making can be to the suitable public or network node route network traffic.Dedicated network also can comprise one or more network nodes that comprise portable terminal 32, and wherein each can communicate in dedicated network inside or via dedicated network.Terminal 32 can comprise, for example, and the electronic system of mobile phone, portable digital-assistant (PDA), beep-pager, laptop computer, smart card and other types.

For helping terminal 32 visit dedicated networks, dedicated network 24 can comprise one or more WAP (wireless access point) (AP) (not shown), and wherein each can be connected to one or more terminals.In this, AP can comprise and is configured to the access point that for example communicates with terminal according to following technology, and this technology is for such as radio frequency (RF), bluetooth (BT), infrared (IrDA) or other multiple different wired and/or radio network techniques that comprises LAN and/or WLAN technology.As public network, dedicated network can comprise initiates SIP client 20, its more detailed below description equally.As previously mentioned, dedicated network can comprise termination SIP client 36, and it can communicate with initiating the SIP client.And also as previously mentioned, one or more terminals of dedicated network can be used as to be initiated the SIP client or stops the SIP client and turn round.

For helping the communication between the network node of the network node of public network 12 and dedicated network 24, each dedicated network can also comprise the network address translater (NAT) that interconnects public and private network.Explain in background one joint as the front, each NAT can be for communicating between public network and corresponding dedicated network, and will be converted to the private ip address of the network node of corresponding dedicated network from the public ip address of public network, and vice versa.Should be understood that NAT also can comprise changing is embedded in for example ALG (ALG) (not shown) of the IP address of Application Protocol Data Unit (PDU).In addition, NAT can comprise or be associated with fire compartment wall and/or the gateway that is used for dedicated network separately.So, as shown in the figure, comprise or the NAT that is associated with firewall/gateway is illustrated by NAT/FW 28.

System 10 also can comprise one or more moving or cellular network 30.Cellular network can comprise the mobile network of one or more varying numbers.In this, cellular network can comprise the first generation (1G), the second generation (2G), 2.5G and/or the third generation (3G) cellular network of any amount, and/or other cellular networks that can turn round according to the embodiment of the present invention of any amount.For example, each cellular network can comprise GSM (global system for mobile communications), IS-136 (time division multiple access-TDMA), IS-95 (code division multiple access-CDMA) or EDGE (enhanced data rates for gsm evolution) network.Alternatively, one or more cellular networks can comprise GPRS (GPRS) or based on (for example, the network of universal mobile telecommunications system-UMTS) of GPRS.

As public and dedicated network 12,24, cellular network 30 also comprises one or more network nodes.In this, the network node of each cellular network can comprise one or more portable terminals 32 that are can be at separately cellular network inner and/or that communicate via separately cellular network.And as previously mentioned, one or more portable terminals can turn round all the same manners as the initiation client node in public and the dedicated network as initiating SIP client 20.In addition, also as previously mentioned, one or more portable terminals can be used as termination SIP client 38 and turn round, and this stops SIP client 38, and is pointed and hereinafter described as preamble, can be according to SIP by sip agent 16 and with initiating the SIP client communication.

In cellular network 30, network node also can comprise one or more network signal support nodes such as one or more SGSN (signaling GPRS Support Node) 38, and one or more gateway support node such as GGSN (Gateway GPRS Support Node) 40.For example, network node can comprise one or more SGSN and one or more GGSN, and is described as a large amount of standards in 3G partner program (3GPP) it is apparent to those skilled in the art that when this terminal relates to communication session with this type of network node SGSN can the route whereabouts and from the communication of portable terminal 32, and be provided to the connection of other network nodes.On the other hand, GGSN can interconnect cellular network and dedicated network 24 in this, well-known, GGSN can carry out the activity of conventional gateway.Should be noted that although cellular network can comprise SGSN and GGSN, cellular network can comprise other similarly running network nodes for the cellular network of other types.

Referring now to Fig. 2,, according to one embodiment of the present invention, it shows the block diagram of the entity that can turn round as network node (for example, sip agent 16, initiation SIP client 20, NAT/FW 28, termination SIP client 36, SGSN 38, GGSN 40 etc.) in public network 12, dedicated network 24 or cellular network 30.Although show the entity of doing separation in some embodiments, one or more entities may be supported one or more common network nodes that exist in these

one or more entities that separate in logic.For example, single entity may be supported to separate in logic but common initiation SIP client and the sip agent that exists.For example, also as noted above, single entity may be supported to separate in logic but common NAT and the firewall/gateway that exists.

As shown in the figure, the entity that can turn round as network node can comprise controller 42 usually, be connected to the processor of memory 44 etc.This controller also can be connected at least one interface 46 or other are used to transmit and/or receive the device of data, content etc.Memory can comprise volatibility and/or nonvolatile memory, and usually memory contents, data etc.For example, according to the embodiment of the present invention, the common storage of memory is used for this controller and carries out the software application of the step of the operation that is associated with this entity, instruction etc.For example, this memory is also stored the content that is sent or received by this network node usually.

Fig. 3 shows according to the embodiment of the present invention, can be used as portable terminal 32 and similarly as initiating SIP client 20 or stopping SIP client 36 and the functional block diagram of the travelling carriage of running.Should be appreciated that this travelling carriage that is illustrated and describes hereinafter only is one type the portable terminal that explanation can be benefited from the present invention, thereby, restriction should do not become to scope of the present invention.Though some execution modes of travelling carriage are illustrated and will describe for the purpose of giving an example hereinafter, can be easy to use the present invention such as the portable terminal of the other types of the voice of portable digital-assistant (PDA), beep-pager, laptop computer and other types and text communication system.

Travelling carriage comprises conveyer 48, receiver 50 and provides signal for this conveyer and receiver respectively and from the controller 52 of this transmitter and receiver received signal.These signals comprise the signaling information according to the air-interface standard of this applicable cellular system, and the data of user speech and/or user's generation.In this, travelling carriage can utilize one or more air-interface standards, communication protocol, modulation type and access style to turn round.More particularly, travelling carriage can turn round according in a plurality of 1G, 2G, 2.5G and/or the 3G communication protocol etc. some.For example, travelling carriage can turn round according to 2G wireless communication protocol IS-136 (TDMA), GSM and IS-95 (CDMA).For example, travelling carriage also can turn round according to 2.5G wireless communication protocol GPRS, enhanced data rates for gsm evolution (EDGE) etc.With bimodulus or more the travelling carriage of height mode (for example, digital-to-analog or TDMA/CDMA/ analog telephone) is the same, some arrowband AMPS (NAMPS) and TACS travelling carriage also may benefit from embodiments of the present invention.

Should be appreciated that controller 52 comprises the audio frequency that is used to realize travelling carriage and logic function and the circuit of needs.For example, controller can comprise digital signal processor device, micro processor device and multiple AD converter, digital-to-analog converter and other support circuit.According to its ability separately, between these equipment, distribute the control and the signal processing function of travelling carriage.Thereby controller is also included within the function of carrying out convolutional encoding and inserting message and data before modulation and the transmission.Controller can comprise internal voice coder (VC) 52A extraly, and can comprise internal data modem (DM) 52B.In addition, controller can comprise that operation can be stored in the function of the one or more software application in the memory.

Travelling carriage also comprises the user interface that comprises conventional earphone or loud speaker 54, ring 56, microphone 60, display 62 and user's inputting interface, and all these is connected to controller 52.These user's inputting interfaces that allow travelling carriage to receive data can comprise the equipment that allows travelling carriage to receive any amount of data, such as keypad 64, touch-screen (not shown) or other input equipments.In comprising the execution mode of keypad, keypad comprises that (# *), also comprises other keys that are used to operate this travelling carriage for traditional numeral (0-9) and relevant key.

Although it is not shown, travelling carriage can also comprise infrared transceiver or another local data transfer equipment, like this, can share and/or obtain data with other equipment, other equipment such as travelling carriage, auto-navigation system, personal computer, printer, comprise the printing material of bar code etc. from other equipment.Sharing of data, and the long-range of data share, and also can provide according to multiple different technology.For example, know that as those skilled in the art travelling carriage can comprise can be with the RF transceiver of other radio-frequency (RF) transceiver and/or radio-frequency (RF) identification (RFID) transponder label shared data.In addition or alternatively, travelling carriage can use the wireless technology shared data by the BT trade mark of bluetooth sig exploitation.In addition, travelling carriage can be according to the multiple different wired and/or radio network technique shared data that comprises LAN and/or WLAN technology.

Travelling carriage also can comprise the memory such as subscriber identification module (SIM) 66, Removable User Identity Module (R-UIM) etc., and it stores the information element of being correlated with the mobile subscriber usually.Except SIM, travelling carriage can comprise other memories.In this, travelling carriage can comprise and can embed wherein and/or movably volatile memory 68 and nonvolatile memory 70.For example, other nonvolatile memories can comprise embedding or movably multimedia memory card (MMC), the memory stick of producing by Sony, EEPROM, flash memory, hard disk etc.Memory can be stored being used to realize the information and the data segment of travelling carriage function by travelling carriage of any amount.For example, memory can be stored the identifier that can discern travelling carriage uniquely, such as international mobile device identification (IMEI) sign indicating number, international mobile subscriber identification (IMSI) sign indicating number, travelling carriage integrated services digital network (MSISDN) sign indicating number etc.Memory also can memory contents, such as will be to initiating that SIP client 20 transmits or from initiating the content that SIP client 20 receives.

As pointed in background one joint, be used to allow initiate with traditional technology such as the communication of the termination SIP client 36 of portable terminal such as the IP device of initiating SIP client 20, (for example ignored as public network 12, the restriction of the PD internet), it will cause using NAP/FW 28 to connect public network and dedicated network separately 24.That is, this technology has been ignored the restriction of available public ip address.This technology has also been ignored the ability that the NAP/FW of fire compartment wall and/or gateway function is provided to dedicated network separately.Thereby embodiments of the present invention provide improved system and method for the communication with terminal node, and wherein terminal node is arranged in honeycomb or other mobile networks.More particularly, embodiments of the present invention provide to allow initiation SIP client to send out the system and method that opens with the SIP connection that stops the SIP client, have solved the limited address space of PD simultaneously.In addition, this system and method can, but be not necessary, allow to initiate node and send out the IP that opens with terminal node and connect, safeguard fire compartment wall and/or gateway function simultaneously to the mobile network.As previously mentioned, initiate the SIP client and send out the communication of opening with the termination SIP client of the terminal that is included in cellular network 30 inside.Yet should be appreciated that, stop the SIP client and can comprise the network node of dedicated network alternatively, and do not deviate from the spirit and scope of the present invention.

Well-known as those skilled in the art, SIP is the application layer control protocol that can set up, revise and stop Multimedia session or calling.SIP is based on text, uses the UTF-8 coding among the ISO10646 fully.Except SIP can use User Datagram Protoco (UDP) (UDP) or transmission control protocol (TCP) carrying transaction, the syntactic class of this message was similar to HTTP.The characteristic of sip message is usually expressed as request or response, and it can be abideed by following form and create, be the request explanation document RFC822 of the internet engineering task group (IETF) in August nineteen eighty-two, exercise question is: Standard for the Format of ARPA Internet Text Messages, its content is introduced the present invention at this by reference in its entirety.

Usually, the entity that relates to the SIP session comprises user agent's (for example, initiate SIP client 20, stop SIP client 36 etc.), sip agent 16, domain name registration service provider and location-based service.The user agent can be used as and sends out the client (UAC) open the SIP request and move.The user agent also can be used as receiving the SIP request and the time gets in touch this user, and the server of representative of consumer back response (UAS) and turning round.As noted earlier, comprise can be as client and server and the intermediate entities of operation simultaneously for sip agent 16.In this, before other server forwards, sip agent can interrupt and revise the SIP request.The domain name registration service provider that realizes in sip agent accepts user's registration (for

example, REGISTER message) and this information can be used by the location-based service that also can realize in sip agent.Thereby location-based service comprises by the employed unit of sip agent to obtain the information about the possible position that stops SIP client 36.

Sip message generally includes initial row, one or more header fields, null (new line-CRLF) and optional message body.Usually, it is (for example to ask that the initial row of sip message indicates this message, INVITE, ACK, OPTIONS, BYE, CANCEL, REGISTER etc.) still (for example respond, 100 information, 200 successes, 300 are redirected, 400 client error, 500 server errors, 600 overall situation failures, etc.) Message header can comprise a plurality of head indications, for example, source (" From: "), destination (" To: "), call identifier (" Call-ID: "), message sequence number (" CSeq: "), contact person (" Contact "), transaction path (" Via: "), length (" Content-Length "), if and in message, carry the content of message body (" Content-Type: ").On the other hand, message body can comprise the data of different types of any amount, its explanation is depended on usually the type of message.Usually, the content of message body can comprise the conversation description of following such as the specific format of Session Description Protocol (SDP), text or extend markup language (XML) script.In this, " Content-Type " header fields has provided the medium type of message body.If message body is through coding, this coding is pointed out in " Content-Encoding " header fields usually, and the length of message body provides in " Content-Length " header fields usually.

Entity by the SIP addressing can comprise the user of sip agent 16 visits that can be by supporting this type of user, and wherein, the user can be discerned by SIP URL(uniform resource locator) (URL).Usually, use SIP URL with indication in sip message inside, for example, initiator (From), the current destination (request URL) in initial row and the final receiver (To) of SIP request.Should be understood that URL uses the form such as " user@host ", wherein " user " discerns user's (for example, the user is bright, telephone number etc) and this user's sip agent (for example, domain name, IP address etc) is supported in " host " identification usually.In this, particularly when URL comprised the domain name of sip agent separately, SIP URLs can be used for arriving based on the domain name by dns server 18 the user location of IP address transition.In this, the initiator can inquire about the dns server that comprises destination address, and comprises the domain name of sip agent in this destination address.

As noted earlier, system 10 can comprise initiation SIP client 20 and stop SIP client 36.Usually, initiate the connection that the SIP client can be asked same this termination SIP client of the sip agent 16 by supporting this termination SIP client.Usually, initiation SIP client also can be used as the peer node of SIP communication session and turns round Similarly, terminal node can be used as another peer node of SIP communication session and turns round.And well-known for those skilled in the art, sip agent can be transmitted the SIP signaling message to stopping the SIP client from initiating the SIP client, and vice versa.Yet, be different from traditional SIP communication technology, in the time of after termination SIP client is positioned at from the NAT/FW 28 that initiates the SIP client, stop SIP client SIP communication session together if initiation SIP client wishes to send out to open, sip agent may be discerned via NAT/FW and stop the SIP client.More particularly, for example, when NAT/FW no longer for stopping SIP client maintenance translation table entry, or when sip agent was no longer served as reasons to the public ip address that NAT/FW distributed that stops the SIP client and port maintenance registration, sip agent possibly can't be discerned termination SIP client.

Yet according to the embodiment of the present invention, IP agency 16 can send non-IP-based triggering to the termination SIP client 36 that is independent of public and dedicated network 12,24, stops the SIP client with indication and for example registers to SIP via NAT/FW 28 again.For example, sip agent can push to the SIP client service of sending SMS message (SMS) message, enhanced messaging service (EMS) message, Multimedia Message service (MMS) message or wireless application protocol (wap) and trigger.In response to this triggering, stopping the SIP client can re-register to sip agent, and initiating the SIP client like this can thereby communicate with stopping the SIP client by sip agent.More particularly, in response to this triggering, stopping the SIP client can register to sip agent by NAT/FW, and NAT/FW distributes to termination SIP client public ip address like this, thereby the termination SIP client that makes sip agent to register to comprise the public ip address that is assigned with.

For allowing sip agent 16 to send non-IP-based triggering to stopping SIP client 36, sip agent can be discerned and stop the SIP client, this termination SIP client is independent of public and IP communication channel dedicated network 12,24, and then on the communication channel that is independent of NAT/FW 28.For example, sip agent can be discerned MSISDN or be associated with other identifiers that stop the SIP client.Then, based on MSISDN, sip agent can send SMS, EMS, MMS or WAP Push triggering to stopping the SIP client.In this, sip agent can enough a large amount of different modes be discerned the non-IP-based identifier that stops the SIP client.In execution mode that should be favourable, before sip agent receives the request that communicates with termination SIP client from initiation SIP client 20, stop the SIP client and register to sip agent.Register to sip agent owing to stop the SIP client, thus this termination SIP client can to sip agent be sent in IP communication channel outside termination SIP client identifier (for example, MSISDN)

Should be understood that under different situations, stop SIP client 36 and sip agent 16 and can have the relation of trust that is pre-existing in.In this case, the non-IP-based identifier of termination SIP client can be based on this kind relation of trust.In other cases, stop SIP client and sip agent and can not have the relation of trust that is pre-existing in.In these cases, stop SIP client and sip agent can, but be not necessary, for example set up relation of trust according to any amount of different technologies.Then, before setting up this kind relation of trust, sip agent can communicate with stopping the SIP client, so that set up relation of trust by being different from the non-IP-based identifier that is used to send terminal non-IP-based triggering, IP-based identifier Next, in case the relation of trust of setting up, sip agent can send non-IP-based triggering to terminal by the non-IP-based identifier that is used for reliable communication.

With reference now to Figure 4 and 5,, it shows respectively and stops SIP client 36 to sip agent 16 registrations, and initiate SIP client 20 and send out the example that opens with the communication that stops the SIP client by sip agent according to the embodiment of the present invention.Be purpose in the example shown in the Figure 4 and 5, think that stopping the SIP client has private ip address: " 10.11.12.13 ", and can be by user " client_A " and host domain name " terminal_name " (that is URL: " client_A@terminal_name ") identification.In addition, think that stopping the SIP client has MSISDN: " 3581234567 ".Equally, for example, think that initiating SIP client 20 has public ip address: " 192.31.10.1 ", and sip agent has public ip address. " 192.21.200.1 ".Think that also considering NAT/FW 28 can distribute one or more IP address in IP address pool " 192.21.200.123-192.21.200.223 ".

As shown in Figure 4, stopping SIP client 36 can be via corresponding N AT/FW 28 by sending SIP REGISTER message to sip agent 16 registrations to sip agent.This SIPREGISTER message can comprise the message segment such as any amount recited above.For example, the header fields of SIPREGISTER message can comprise that identification stops the source and the first open communication port (" From:10.11.12.13,5060 ") of the private ip address of SIP client 36.Should be understood that aforesaid this first open communication port can comprise " 5060 ", it is in response to for according to UDP or the TCP (communication port that the sip message of or SCTP-SCTP) send keeps.For example, header fields also can comprise order ground and this first open communication port (" To:192.21.200.1, 5060 ") of the public ip address of discerning sip agent, and identification stops the user of SIP client and the contact person (" Contact:Sip:client_A@terminal_name ") of domain name.According to the embodiment of the present invention, header fields can also comprise the non-IP-based identifier that stops the SIP client.For example, header fields can also comprise the MSISDN (" MSISDN:3581234567 ") of this termination SIP client.

In response to SIP REGISTER message, NAT/FW 28 can create new translation table entry for stopping SIP client 36, the private ip address (for example, " 10.11.12.13 ") that this translation table entry will stop the SIP client is associated with the public ip address and second open port.For example, NAT/FW can be associated the public ip address " 192.21.200.123 " and the second open communication port " 32456 " with stopping the SIP client.Creating new translation table entry to allow outside the communication between intermediate node and the NAT/FW, if desired, NAT/FW also can increase allow by this second open communication port from the communication of NAT/FW and new fire compartment wall (FW) filter by this first open communication port to the communication of sip agent 16.

After creating new translation table entry, NAT/FW 28 can be to distribute to public ip address and the port that stops SIP client 36 by NAT/FW with specific address in the header fields of SIP REGISTER message and port translation.Like this, continue the example of front, NAT/FW can be converted to the source portion that comprises "

From:10.11.12.13,5060 " the source portion that comprises " From:192.21.200.123,32456 ".Equally, depend on the operation of the ALG of NAT/FW, can conversion identification stop the user of SIP client and the contact person of domain name, distribute to public ip address and the port that stops the SIP client by NAT/FW with identification.Next, after the address and port of conversion SIP REGISTER message, NAT/FW can pass to this SIPREGISTER message sip agent 16 and be used for registration.

When the registration message that receives through conversion, sip agent 16 can be created new registry entries for this stops SIP client 36, or upgrades existing registry entries.For example, registry entries can comprise by NAT/FW 28 distributes to public ip address and the port that stops the SIP client, and identification stops the user of SIP client and the contact person (" Contact:sip:client_A@terminal_name ") of domain name.In this, sip agent can be tied to public ip address and the port of being distributed to termination SIP client by NAT/FW with user and the domain name that stops sip agent.Except that public address and port, and according to the embodiment of the present invention, registry entries can comprise the non-IP-based identifier (for example, " MSISDN:3581234567 ") that stops the SIP client.

After for 36 establishments of termination SIP client or registration updating clauses and subclauses, sip agent 16 can be confirmed the reception and the establishment/renewal of this registry entries.In this, sip agent can be by NAT/FW 28 to the affirmation that stops SIP client transmission such as 200OK message.As well-known, for example, 200OK message can comprise the header fields of the different messages section with any amount.For example, the head of 200OK message can comprise the public ip address of discerning sip agent and the source (" From:192.21.200.1,5060 ") of first open port.For example, header fields can comprise that also identification distributes to the public ip address that stops the SIP client and the destination (" To:192.21.200.123,32456 ") of second open port.

In response to 200OK message, NAT/FW 28 can will distribute to the public ip address that stops SIP client 36 and the second communication port translation private ip address and first communication port for this termination SIP client.Thereby for example, NAT/FW can be converted to the destination head that comprises " To:192.21.200.123,32456 " the destination head that comprises " To:10.11.12.13,5060 ".Then, NAT/FW can pass to the 200OK message of being changed and stop the SIP client.

With stopping the registration of SIP client 36 to sip agent 16, sip agent can be transmitted sip message to stopping the SIP client.Yet under multiple situation, such as in " life span " after the cycle, NAT/FW 28 can remove translation table entry for stopping the SIP client.In addition or alternatively, for example, sip agent can stop to comprise by NAT/FW and distributing to the public ip address that stops the SIP client and the registry entries of port for stopping the SIP client maintenance.In other cases, should be understood that perhaps sip agent can't discern this termination SIP client via NAT/FW, transmit sip message and can not stop the SIP client to this by NAT/FW.

With reference now to Fig. 5, it shows exemplary situation, and wherein sip agent 16 can not stop SIP client 36 via NAT/FW 28 identifications.As shown in the figure, initiate 20 expectations of SIP client and open the SIP communication session to stopping 36 of SIP clients.Send out the unblank letter, initiate the SIP client and can send the SIP INVITE to stopping the SIP client.In this, initiation SIP client can be to supporting this sip agent of initiating the SIP client 16 to send the SIP INVITE, and this sip agent 16 can be identical or different with the sip agent of supporting termination SIP client.Next the sip agent of SIP client is initiated in this support can transmit this SIP INVITE to the sip agent (shown in Figure 6) of supporting termination SIP client.In this, this SIP INVITE can directly be forwarded to the sip agent of supporting to stop the SIP client, or such as the sip agent by one or more centres, indirectly to supporting the sip agent that stops the SIP client to transmit.Next, as described below, unless stated otherwise, sip agent refers to the sip agent that this support stops the SIP client.

It should be appreciated by those skilled in the art that the SIP INVITE can comprise the different messages section of any amount.For example, the header fields of SIP INVITE can comprise the source of the public ip address of the identification initiation SIP client 20 and the first open communication port (" From:192.31.10.1,5060 ").More particularly, this source header fields can be discerned the public ip address of the sip agent of supporting the initiation SIP client and first open port.For example, this header fields can comprise that also identification stops the user of SIP client 36 (" To:sip:client_A@terminal_name ") and the destination of domain name.

After receiving this SIP INVITE, sip agent 16 can stop the user of SIP client 36 and its registry entries of dns search to find one of them clauses and subclauses for this.Yet in all cases, sip agent can have been recognized NAT/FW 28, for example based on " life span " cycle, removed the translation table entry of this termination SIP client, or this sip agent has stopped safeguarding the registry entries of this termination SIP client.In these cases, sip agent can be fetched non-IP-based identifier (for example, (" MSISDN:3581234567 ")) (see figure 5) of this termination SIP client from the registry entries of the previous termination SIP client that stops the SIP client.In addition, sip agent can cushion from the SIP INVITE of initiating SIP client 20 in such as the memory (for example, memory 44) of sip agent.And, should be understood that in all cases as described below, before sip agent energy treatment S IP INVITE, initiation SIP client can send the SIP INVITE more than.Under this class situation, sip agent can be safeguarded the buffer of this SIP INVITE, such as by follow-up rewriteeing this SIPINVITE message from initiating the SIP client to the SIP INVITE that stops the SIP client with each.

Behind the non-IP-based identifier of fetching this termination SIP client 36, sip agent 16 can send non-IP-based triggering to stopping the SIP client according to this non-IP-based identifier, thereby instructs this termination SIP client to re-register to this sip agent.For example, sip agent can send SMS message, EMS message, MMS message or WAP Push triggering to stopping the SIP client via being independent of cellular network 30 and NAT/FW public and dedicated network 12,24.This non-IP-based triggering can comprise that instruction stops the different message segments of any amount that the SIP client re-registers to sip agent.In addition, this non-IP-based triggering can be discerned and initiate the SIP client.In this case, based on this sign of initiating the SIP client, this termination SIP client can determine whether re-register to this sip agent.

In response to this triggering, stopping SIP client 36 can re-register to sip agent 16, make NAT/FW 28 to distribute public ip address and communication port for this termination SIP client again, and this sip agent can upgrade the registry entries that it stops the SIP client.More particularly, the same with the front, receive this triggering in case stop the SIP client, this stops the SIP client can send SIP REGISTER message to sip agent by NAT/FW separately, wherein this SIP RESIGER message can comprise this termination SIP client once more non-IP-based identifier (for example, MSISDN) in response to this SIP REGISTER message, NAT/FW 28 can create the new translation table entry of this termination SIP client 36 once more, the private ip address that this translation table entry will stop the SIP client (promptly, " 10.11.12.13 ") same public ip address is (for example, " 192.21.200.124 ") and second (or 3rd) open communication port (for example, third communication port " 32457 ") be associated.

After creating new translation table entry, NAT/FW 28 in the future the private ip address in the header fields of the SIP REGISTER message of self termination SIP client 36 and port translation for distribute to the public ip address and the port of this termination SIP client by NAT/FW.Then, NAT/FW can pass to the SIP REGISTER message after this conversion sip agent 16 to be used for registration.The same with the front, when the registration message that receives this process conversion, this sip agent can upgrade previous registration (with reference to figure 5) for stopping the SIP client.The same with the front, the non-IP-based identifier that this registry entries also can comprise this termination SIP client (for example, MSISDN).

After the registry entries of having upgraded termination SIP client 36, sip agent 16 can be confirmed the reception and the establishment/renewal of this registry entries.The same with the front, for example, sip agent can send 200OK message to stopping the SIP client via NAT/FW 28.Then, sip agent stops the user and the domain name of SIP client based on this, the public ip address and the port of this termination SIP client distributed in retrieval from its registry entries separately, and the user of this termination SIP client and domain name are contained among the SIP INVITE and registry entries separately that is cushioned.Then, sip agent can be retrieved this SIP INVITE that is cushioned, and use the public ip address and port (" To:192.21.200.124, the 32457 ") conversion identification of being distributed to stop the user of SIP client and the destination (" To:sip.client_A@terminal_name ") of domain name

After this SIP INVITE was changed the public ip address and port of the termination SIP client 36 of being distributed to comprise, sip agent 16 can be transmitted this SIP INVITE to this termination SIP client with crossing NAT/FW 28.In this, NAT/FW can receive the SIP INVITE from sip agent, and the translation table entry of searching this termination SIP client based on the public ip address that is distributed and the communication port (being included in the SIP INVITE of being changed) of this termination SIP client.Next, the NAT/FW private ip address and first communication port that the destination of this SIP INVITE can be converted to this termination SIP client from the public ip address that distributed and communication port.For example, NAT/FW can be converted to the destination header fields that comprises " To:192.21.200.124,32457 " the destination header fields that comprises " To:10.11.12.13,5060 ".

After the destination head of this SIP INVITE of conversion, NAT/FW 28 can transmit this SIP INVITE to initiating SIP client 36 based on this private ip address and first communication port of initiating the SIP client.Then, initiate the reception that the SIP client can be confirmed this SIPINVITE.In this, initiate the SIP client and can initiate SIP client transmission 200OK message to this by NAT/FW 28 and sip agent 16.For example, this 200OK message can comprise the private ip address of identification initiation SIP client and the source header fields (" From:10.11.12.13; 5060 ") of first port, and identification stops the public ip address of SIP client 20 and the destination header fields (" To:192.31.10.1,5060 ") of first communication port.

In response to this 200OK message, NAT/FW 28 can be converted to public ip address and the third communication port that is distributed with the private ip address and first communication port from the translation table entry that stops SIP client 36 Thereafter, NAT/FW can send the 200OK message of being changed to and can transmit the sip agent 16 of this 200OK message to initiating the SIP client.Can understand as those skilled in the art, when receiving this 200OK message, according to the session parameter that is included in this SIPINVITE and the 200OK response, can be based upon the communication session of initiating between SIP client 20 and the termination SIP client, make and initiate and stop the SIP client and can communicate.For example, according to the different agreement of any amount, initiate and stop the SIP client and can participate in the multimedia communication sessions.

In addition, as described herein, stop SIP client 36 and be positioned at from after the NAT/FW 28 that initiates SIP client 20.Yet should be understood that this terminal node can be positioned at firewall/gateway (FW) afterwards, and do not have NAT stopping the SIP client and initiating between the SIP client.Under this class situation, embodiments of the present invention can allow to initiate the SIP client and send out the unblank letter to stopping the SIP client, in these cases communication may otherwise retrained by FW, thereby be to comprise the network operation fire compartment wall of this terminal and/or the function of gateway.

For example, should be understood that, comprise that the system 10 of the NAT that is used for the private/public address conversion is the networks that typically communicate according to IP version 4 (IPv4) as those skilled in the art.Yet should be appreciated that this system or its part can be configured to communicate according to the IP version 6 (IPv6) of supporting the IP address longer than IPv4 alternatively.In this, because IPv6 supports the IP address longer than IPv4, one or more dedicated networks can not need NAT to come executive address/port translation.Under this type of situation, system can not comprise NAT or NAT/FW, but as an alternative, for example comprises with described same way as above, as the security mechanism of the dedicated network that is associated and the firewall/gateway (FW) that turns round.Thereby although terminal node can have the IPv6 address that is associated, this system can be as indicated above and turns round.So, in the source or the destination of initiating the communication between SIP client and the termination SIP client, can discern the public IPv6 address and the transmission of this termination SIP client, and do not need from the conversion of public IPv4 address to special I Pv4 address, vice versa, wherein this source and destination otherwise will discern by NAT and be converted to the public IPv4 address of being distributed special I Pv4 address, this terminal node.

Those skilled in the art in the invention benefit from the enlightenment showed in the specification of front and the relevant drawings, will associate many modifications of the present invention and other execution modes.Therefore, should be appreciated that the present invention should not be limited to disclosed specific implementations, and modification will be included in the scope of appended claims with other execution mode.Although used specific term at this, it only is used for common and the descriptive meaning, but not the purpose that is used to limit.

Patent Citations (32)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
JPS6224833A	1986-04-21	1987-10-29	Mitsubishi Electric Corp	Packet switching system
JP3340864B2	1994-07-05	2002-11-05	富士通株式会社	ATM-LAN, server and ATM address management method
FI1068318	1998-01-14	2001-04-12	Nokia Networks Oy	Access control procedure for a mobile telephone system
US6751677B1 *	1999-08-24	2004-06-15	Hewlett-Packard Development Company, L.P.	Method and apparatus for allowing a secure and transparent communication between a user device and servers of a data access network system via a firewall and a gateway
FI112151B	1999-12-23	2003-10-31	Nokia Corp	Dissemination of a message
FI111780B	1999-12-23	2003-09-15	Nokia Corp	The messaging service
JP3535044B2 *	2000-02-24	2004-06-07	日本電信電話株式会社	Frame transfer method
US6618757B1	2000-05-17	2003-09-09	Nortel Networks Limited	System and method for dynamic IP address management
WO2002009387A1	2000-07-21	2002-01-31	Nokia Corporation	Sip sessions between ipv4 and ipv6 clients and sip based call setup in 3gpp ip multimedia subsystem with nat in place
US6910074B1	2000-07-24	2005-06-21	Nortel Networks Limited	System and method for service session management in an IP centric distributed network
US20020064164A1 *	2000-10-06	2002-05-30	Barany Peter A.	Protocol header construction and/or removal for messages in wireless communications
US7870196B2	2000-11-08	2011-01-11	Nokia Corporation	System and methods for using an application layer control protocol transporting spatial location information pertaining to devices connected to wired and wireless internet protocol networks
US7072650B2 *	2000-11-13	2006-07-04	Meshnetworks, Inc	Ad hoc peer-to-peer mobile radio access system interfaced to the PSTN

				and cellular networks
US20020138622A1	2001-03-21	2002-09-26	Motorola, Inc.	Apparatus and method of using long lived addresses in a private network for push messaging to mobile devices
EP2234407A1	2001-06-08	2010-09-29	The Distribution Systems Research Institute	Terminal-to-terminal communication connection control system for IP full service
US6891842B2	2001-09-21	2005-05-10	Nokia Corporation	System and method for enabling mobile edge services
US7072332B2	2001-09-27	2006-07-04	Samsung Electronics Co., Ltd.	Soft switch using distributed firewalls for load sharing voice-over-IP traffic in an IP network
US7099288B1	2001-10-16	2006-08-29	Sprint Communications Company L.P.	Telephonic addressing for establishing simultaneous voice and computer network connections
JP2003179603A	2001-12-13	2003-06-27	Kyocera Mita Corp	Communication control method in communication system, program, transmitter and receiver
US7443859B2	2001-12-18	2008-10-28	Nokia Corporation	Method and apparatus for address allocation in GPRS networks that facilitates end-to-end security
JP2003224580A *	2002-01-30	2003-08-08	Nef:Kk	Network address converter
WO2003069364A2 *	2002-02-14	2003-08-21	Avaya Technology Corp	Presence tracking and name space interconnection techniques
JP4303600B2	2002-04-08	2009-07-29	テレフオンアクチーボラゲット エル エム エリクソン（パブル）	Connection setting mechanism between networks with different address areas
EP1504577A4	2002-05-06	2010-02-17	Qualcomm Inc	System and method for registering ip address of wireless communication device
JP3922545B2 *	2002-06-14	2007-05-30	日本電気株式会社	Communication control method in cellular phone system
JP4252771B2 *	2002-06-25	2009-04-08	テレフオンアクチーボラゲット エル エム エリクソン（パブル）	Wireless terminal, wireless terminal management device, and location registration auxiliary device
US20040003058A1	2002-06-26	2004-01-01	Nokia, Inc.	Integration of service registration and discovery in networks
US9497168B2 *	2002-07-30	2016-11-15	Avaya Inc.	Method and apparatus for supporting communications between a computing device within a network and an external computing device
US8234358B2	2002-08-30	2012-07-31	Inpro Network Facility, Llc	Communicating with an entity inside a private network using an existing connection to initiate communication
US7058047B2 *	2003-01-24	2006-06-20	Houston Associates, Inc.	Multi-level expedited forwarding per hop behavior
US8005070B2 *	2003-03-12	2011-08-23	Lon Communication Mgmt. Llc	Extension of a local area phone system to a wide area network with handoff features
US7694127B2 *	2003-12-11	2010-04-06	Tandberg Telecom As	Communication systems for traversing firewalls and network address translation (NAT) installations

* Cited by examiner, † Cited by third party

Cited By (79)

Publication number	Priority date	Publication date	Assignee	Title
CN103166967A *	2013-03-07	2013-06-19	李想	Centerless exchange communication system and communication method thereof
Family To Family Citations				
US6751463B1	1999-10-04	2004-06-15	Telecommunication Systems, Inc.	Intelligent queue for information teleservice messages with superceding updates
US7836504B2	2003-10-03	2010-11-16	Verizon Services Corp.	Security management system for monitoring firewall operation
KR100552513B1 *	2003-12-17	2006-02-14	삼성전자주식회사	method and apparatus for providing VoIP service
US8086741B2	2004-03-10	2011-12-27	Core Wireless Licensing S.A.R.L.	System and method for pushing content to a terminal utilizing a network-initiated data service technique
US7570636B2 *	2004-06-29	2009-08-04	Damaka, Inc.	System and method for traversing a NAT device for peer-to-peer hybrid communications
US8050272B2	2004-06-29	2011-11-01	Damaka, Inc.	System and method for concurrent sessions in a peer-to-peer hybrid communications network
US7933260B2	2004-06-29	2011-04-26	Damaka, Inc.	System and method for routing and communicating in a heterogeneous

				network environment
US8437307B2	2007-09-03	2013-05-07	Damaka, Inc.	Device and method for maintaining a communication session during a network transition
US8009586B2	2004-06-29	2011-08-30	Damaka, Inc.	System and method for data transfer in a peer-to peer hybrid communication network
KR100607983B1 *	2004-07-16	2006-08-02	삼성전자주식회사	System and method for communication between heterogeneous networks
US7408926B1 *	2004-09-02	2008-08-05	Microsoft Corporation	Method and apparatus for accessing voice over internet protocol connection
US7594259B1 *	2004-09-15	2009-09-22	Nortel Networks Limited	Method and system for enabling firewall traversal
US7542463B2 *	2004-09-24	2009-06-02	Cisco Technology, Inc.	Communicating packets along a control channel and a media channel
US7782802B1	2004-10-22	2010-11-02	Juniper Networks, Inc.	Enabling incoming VoIP calls behind a network firewall
FI20041634A0 *	2004-12-20	2004-12-20	Nokia Corp	Setting up a supply session in a communication system
KR100694206B1 *	2005-02-28	2007-03-14	삼성전자주식회사	Pmethod and apparatus for providing sip service in private network
KR100612252B1 *	2005-02-28	2006-08-14	삼성전자주식회사	Method and system for providing of packet communication service
KR100788529A1 *	2005-02-28	2007-12-12	삼성전자주식회사	method and system for providing of packet communication service
US8913983B2	2005-05-27	2014-12-16	Telecommunication Systems, Inc.	Voice over internet protocol (VoIP) E911 metro street address guide (MSAG) validation
US7948502B2	2005-05-27	2011-05-17	Telecommunications Systems, Inc.	Voice over internet protocol (VoIP) E911 metro street address guide (MSAG) validation
US9161189B2 *	2005-10-18	2015-10-13	Telecommunication Systems, Inc.	Automatic call forwarding to in-vehicle telematics system
US8027251B2 *	2005-11-08	2011-09-27	Verizon Services Corp.	Systems and methods for implementing protocol-aware network firewall
US9374342B2	2005-11-08	2016-06-21	Verizon Patent And Licensing Inc.	System and method for testing network firewall using fine granularity measurements
JP2009523334A *	2006-01-05	2009-06-18	インスト・インターナショナル・インコーポレイテッド	End-to-end architecture for universal mobility and radio recognition transport
CN101371239A *	2006-01-09	2009-02-18	摩托罗拉公司	Method and system architecture for establishing a specific communication session in a communication network
EP2056567A3 *	2006-04-24	2010-11-03	KTFreetel Co., Ltd.	Interworking system between IP networks using different IP addressing scheme, application layer gateway (ALG), network address translator, and SIP message routing method thereof
GB0608388D0 *	2006-04-27	2006-06-07	Nokia Corp	Communications in relay networks
US7835448B2 *	2006-06-28	2010-11-09	Research In Motion Limited	Power saving in a device compatible with cellular and WLAN networks
US20080031237A1 *	2006-08-02	2008-02-07	Tsu-Hung Liu	internet media server finding and playing methodologies
JP2008085470A *	2006-09-26	2008-04-10	Fujitsu Ltd	Ip application service provision system
GB2442213B *	2006-09-29	2011-09-14	Avaya Tech Llc	Methods and apparatus for managing internet communications using a dynamic stun infrastructure configuration
US20080080532A1 *	2006-09-29	2008-04-03	O'sullivan Mark	Methods and apparatus for managing internet communications using a dynamic STUN infrastructure configuration
US7664108B2 *	2006-10-10	2010-02-16	Abdullah Ali Bahattab	Route once and cross-connect many
US8966619B2 *	2006-11-08	2015-02-24	Verizon Patent And Licensing Inc.	Prevention of denial of service (DoS) attacks on session initiation protocol (SIP)-based systems using return routability check filtering
US9473529B2	2006-11-08	2016-10-18	Verizon Patent And Licensing Inc.	Prevention of denial of service (DoS) attacks on session initiation protocol (SIP)-based systems using method vulnerability filtering
KR101424810B1 *	2006-11-13	2014-08-04	삼성전자주식회사	Method and apparatus for managing messages thread in converged internet protocol messaging service
US8929360B2	2006-12-07	2015-01-06	Cisco Technology, Inc.	Systems, methods, media, and means for hiding network topology
US20080267167A1 *	2007-04-27	2008-10-30	Apelqvist Johan	System and method for set up of an ip communication to the origin of a circuit switched call
US8725883B2 *	2007-05-11	2014-05-13	Nokia Corporation	Method for the establishing of peer-to-peer multimedia sessions in a communication system

US8302186B2	2007-06-29	2012-10-30	Verizon Patent And Licensing Inc.	System and method for testing network firewall for denial-of-service (DOS) detection and prevention in signaling channel
US8307094B2 *	2007-07-20	2012-11-06	Alcatel Lucent	Method for processing register request, network element, and communication system
US8862164B2	2007-09-28	2014-10-14	Damaka, Inc.	System and method for transitioning a communication session between networks that are not commonly controlled
WO2009070718A1	2007-11-28	2009-06-04	Damaka, Inc.	System and method for endpoint handoff in a hybrid peer-to-peer networking environment
US20090214034A1 *	2008-02-26	2009-08-27	Rohit Mehrotra	Systems and methods for enabling electronic messaging with recipient-specific content
WO2010088774A1 *	2009-02-06	2010-08-12	Sagem Interstar, Inc.	Scalable nat traversal
US8392581B2 *	2009-06-09	2013-03-05	Verizon Patent And Licensing Inc.	Intelligent IMS SIP session setup optimization
US8725895B2	2010-02-15	2014-05-13	Damaka, Inc.	NAT traversal by concurrently probing multiple candidates
US8892646B2	2010-08-25	2014-11-18	Damaka, Inc.	System and method for shared session appearance in a hybrid peer-to-peer environment
US8874785B2	2010-02-15	2014-10-28	Damaka, Inc.	System and method for signaling and data tunneling in a peer-to-peer environment
US8868930B2	2010-03-19	2014-04-01	Damaka, Inc.	System and method for providing a virtual peer-to-peer environment
US9521168B2 *	2010-03-23	2016-12-13	France Telecom	Method for managing records in an IMS network, and S-CSCF server implementing said method
US9043488B2	2010-03-29	2015-05-26	Damaka, Inc.	System and method for session sweeping between devices
US8423058B2 *	2010-04-07	2013-04-16	Apple Inc.	Registering client computing devices for online communication sessions
US9191416B2	2010-04-16	2015-11-17	Damaka, Inc.	System and method for providing enterprise voice call continuity
US8352563B2	2010-04-29	2013-01-08	Damaka, Inc.	System and method for peer-to-peer media routing using a third party instant messaging system for signaling
US9294911B2	2010-05-10	2016-03-22	Telecommunication Systems, Inc.	Cell-ID translation in a location based system (LBS)
US8446900B2	2010-06-18	2013-05-21	Damaka, Inc.	System and method for transferring a call between endpoints in a hybrid peer-to-peer network
US8611540B2	2010-06-23	2013-12-17	Damaka, Inc.	System and method for secure messaging in a hybrid peer-to-peer network
JP5338765B2 *	2010-07-27	2013-11-13	ブラザー工業株式会社	COMMUNICATION DEVICE, COMMUNICATION METHOD, AND COMMUNICATION PROGRAM
US8910259B2	2010-08-14	2014-12-09	The Nielsen Company (Us), Llc	Systems, methods, and apparatus to monitor mobile internet activity
US8886773B2	2010-08-14	2014-11-11	The Nielsen Company (Us), Llc	Systems, methods, and apparatus to monitor mobile internet activity
US8468010B2	2010-09-24	2013-06-18	Damaka, Inc.	System and method for language translation in a hybrid peer-to-peer environment
US8874785B2	2010-10-11	2014-06-03	Damaka, Inc.	System and method for a reverse invitation in a hybrid peer-to-peer environment
US8407314B2	2011-04-04	2013-03-26	Damaka, Inc.	System and method for sharing unsupported document types between communication devices
US8694587B2	2011-05-17	2014-04-08	Damaka, Inc.	System and method for transferring a call bridge between communication devices
US9124920B2	2011-06-29	2015-09-01	The Nielsen Company (Us), Llc	Methods, apparatus, and articles of manufacture to identify media presentation devices
US8594617B2	2011-06-30	2013-11-26	The Nielsen Company (Us), Llc	Systems, methods, and apparatus to monitor mobile internet activity
US8478890B2	2011-07-15	2013-07-02	Damaka, Inc.	System and method for reliable virtual bi-directional data stream communications with single socket point-to-multipoint capability
US8688174B2	2012-03-13	2014-04-01	Telecommunication Systems, Inc.	Integrated, detachable ear bud device for a wireless phone
US10356579B2	2013-03-15	2019-07-16	The Nielsen Company (Us), Llc	Methods and apparatus to credit usage of mobile devices
US9301173B2	2013-03-15	2016-03-29	The Nielsen Company (Us), Llc	Methods and apparatus to credit internet usage

US8027032B2	2013-07-16	2015-05-05	Damaka, Inc.	System and method for providing additional functionality to existing software in an integrated manner
US9357016B2	2013-10-18	2016-05-31	Damaka, Inc.	System and method for virtual parallel resource management
EP3125507B1 *	2014-04-03	2018-12-12	Huawei Technologies Co., Ltd.	Ip address allocation device, system and method
WO2016022574A1	2014-08-05	2016-02-11	Damaka, Inc.	System and method for providing unified communications and collaboration (ucc) connectivity between incompatible systems
US9762888B2	2014-10-31	2017-09-12	The Nielsen Company (Us), Llc	Methods and apparatus to improve usage crediting in mobile devices
US11423420B2	2015-02-06	2022-08-23	The Nielsen Company (Us), Llc	Methods and apparatus to credit media presentations for online media distributions
US10091025B2	2016-03-31	2018-10-02	Damaka, Inc.	System and method for enabling use of a single user identifier across incompatible networks for UCC functionality

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
CN1947401B	2010-11-10	System and method for establishing a session initiation protocol communication session with a mobile terminal
KR100885522B1	2009-02-26	System and method for pushing content to a terminal utilizing a network-initiated data service technique
US9049202B2	2015-06-02	Embedding user equipment information within third party registration messages
US8213913B2	2012-07-03	Providing location based services for mobile devices
US20060078096A1	2006-04-13	Systems and methods for encapsulation based session initiation protocol through network address translation
US11206291B2	2021-12-21	Session control logic with internet protocol (IP)-based routing
EP3262816B1	2020-05-06	Realm translation in an ims network
CN101208962A	2008-06-25	Method and element for service control
CN102668485B	2015-09-23	The disposal of public identifier
EP2489210B1	2017-06-21	Delivery of a message between an ims domain and a cs domain
US20100306349A1	2010-12-02	Method and System for Configuring Service on Terminal
EP1944945B1	2013-03-28	Communication system with transparent subscriber mobility based on group registration
EP2091191A1	2009-08-19	Method, system, server and terminal for call redirection
EP2079215A1	2009-07-15	Virtual home network arrangement for a subscriber module using IMS
MXPA06010188A	2007-04-20	System and method for pushing content to a terminal utilizing a network-initiated data service technique
CN101554035A	2009-10-07	Address translation

Priority And Related Applications

Applications Claiming Priority (3)

Application	Filing date	Title
US10/797,765	2004-03-10	System and method for establishing a session initiation protocol communication session with a mobile terminal
US10/797,765	2004-03-10	
PCT/IB2005/000625	2005-03-07	System and method for establishing a session initiation protocol communication session with a mobile terminal

Legal Events

Date	Code	Title	Description
2007-04-11	C06	Publication	
2007-04-11	PB01	Publication	

2007-06-06	C10	Entry into substantive examination	
2007-06-06	SE01	Entry into force of request for substantive examination	
2010-11-10	C14	Grant of patent or utility model	
2010-11-10	GR01	Patent grant	
2012-05-16	C17	Cessation of patent right	
2012-05-16	CF01	Termination of patent right due to non-payment of annual fee	**Granted publication date:** 20101110 **Termination date:** 20110307

Concepts

machine-extracted

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Name	Image	Sections	Count	Query match
communication		title,claims,abstract,description	93	0.000
initiatory		title,claims,description	65	0.000
response		claims,abstract,description	28	0.000
chemical substances by application		claims,description	101	0.000
biological transmission		claims,description	10	0.000
triggered		claims	2	0.000

Show all concepts from the description section

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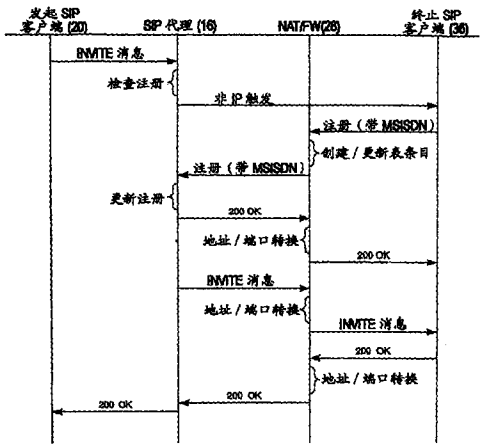
[22] 申请日 2005.3.7
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[71] 申请人 诺基亚公司
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权利要求书 8 页 说明书 20 页 附图 4 页

[54] 发明名称

用于同移动终端建立会话发起协议通信会话的系统和方法

[57] 摘要

用于同终端(即，终止 SIP 客户端)建立通信会话的系统。该系统包括位于网络中的网络节点(例如，SIP 代理)，发起客户端能够经由该网络进行通信。该网络节点可以向独立于网络的该终端发送触发。该网络节点也可以响应于该触发经由该网络接收来自终端的注册消息。在这点上，该网络节点能够接收该注册消息，以因而经由网络识别该终端，使得能够基于该终端的标识，经由网络同该终端建立通信会话。



1. 一种用于同终端建立通信会话的系统，所述系统包括：

位于网络中的网络节点，发起客户端能够经由所述网络进行通信，其中所述网络节点能够接收连接请求，并继而向独立于所述发起客户端的位置的所述终端发送触发，其中所述网络节点也能够接收响应于所述触发的注册消息并继而向所述网络节点注册所述终端，以及经由所述网络识别所述终端，以便能够基于所述终端的标识经由所述网络同所述终端建立所述通信会话。

2. 根据权利要求 1 中所述的系统，其中所述网络节点能够接收来自所述发起客户端的连接请求，以及其中所述网络节点能够在注册所述终端后，向所述终端发送所述连接请求。

3. 根据权利要求 2 中所述的系统，其中所述网络节点能够通过至少一个其他网络节点向所述终端发送所述连接请求。

4. 根据权利要求 1 中所述的系统，其中所述网络节点包括会话发起协议（SIP）代理。

5. 根据权利要求 1 中所述的系统，其中所述网络节点能够接收并且此后在缓冲器中存储所述连接请求，以及其中所述网络节点能够接收所述注册消息并继而从所述缓冲器检索所述连接请求，并且基于所述终端的所述标识经由所述网络向所述终端发送所述连接请求。

6. 根据权利要求 1 中所述的系统，其中所述网络节点能够通过位于所述网络节点和所述终端之间的网络地址转换器（NAT）和防火墙（FW）中的至少一个，接收来自所述终端的所述注册消息，以及其中所述网络节点能够以独立于所述 NAT 和 FW 中的至少一个的方式发送所述触发。

7. 根据权利要求 1 中所述的系统，其中所述网络节点也能够在发送所述触发之前，接收来自所述终端的第一注册消息，以向所述网络节点注册所述终端，其中所述第一注册消息包括独立于所述网络的所述终端的标识符，使得所述网络节点能够基于独立于所述网络的所述终端的

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所述标识符发送所述触发，以及其中所述网络节点能够响应于所述触发接收后继注册消息。

8. 根据权利要求 1 中所述的系统，其中所述网络节点位于网络中，发起客户端能够经由所述网络进行直接或间接通信中的至少一种。

9. 根据权利要求 8 中所述的系统，其中所述网络包括公共网络和专用网络之一。

10. 一种同终端建立通信会话的系统，所述系统包括:

位于网络中的网络节点，发起客户端能够经由所述网络进行通信，其中 SIP 代理能够接收注册消息，以继而向所述 SIP 代理注册所述终端，其中所述注册消息包括独立于所述网络的所述终端的标识符，其中所述网络节点能够基于所述终端的所述标识符，触发独立于所述网络的所述终端，以继而经由所述网络识别所述终端，以便能够基于所述终端的标识经由所述网络同所述终端建立所述通信会话。

11. 根据权利要求 10 中所述的系统，其中所述网络节点能够接收来自所述发起客户端的连接请求，其中所述网络节点能够响应于接收所述连接请求而触发所述终端，以及其中所述网络节点能够在经由所述网络识别所述终端之后，向所述终端发送所述连接请求。

12. 根据权利要求 11 中所述的系统，其中所述网络节点能够通过至少一个其他网络节点向所述终端发送所述连接请求。

13. 根据权利要求 11 中所述的系统，其中所述网络节点能够接收并继而在缓冲器中存储所述连接请求，以及其中所述网络节点能够从所述缓冲器中检索所述连接请求并继而基于所述终端的所述标识经由所述网络向所述终端发送所述连接请求，以继而建立所述通信会话。

14. 根据权利要求 10 中所述的系统，其中所述网络节点包括会话发起协议（SIP）代理。

15. 根据权利要求 10 中所述的系统，其中所述网络节点能够通过位于所述网络节点和所述终端之间的网络地址转换器（NAT）和防火墙（FW）中的至少一个，接收来自所述终端的所述注册消息，以及其中所述网络节点能够以独立于所述 NAT 和所述 FW 中的至少一个方式触

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发所述终端。

16. 根据权利要求 10 中所述的系统，其中所述网络节点能够接收第一注册消息，以继而向所述网络节点注册所述终端，其中所述网络节点也能够响应于对所述终端的触发，接收来自所述终端的后继注册消息，以继而经由所述网络识别所述终端，以及其中所述网络节点能够经由所述网络识别所述终端，以便能够基于所述终端的所述标识经由所述网络同所述终端建立通信会话。

17. 根据权利要求 10 中所述的系统，其中所述网络节点位于网络中，发起客户端能够经由所述网络进行直接或间接通信中的至少一种。

18. 根据权利要求 17 中所述的系统，其中所述网络包括公共网络和专用网络之一。

19. 一种同终端建立通信会话的方法，所述方法包括:

从位于网络中的网络节点向所述终端发送触发，发起客户端能够经由所述网络进行通信，其中发送所述触发包括发送独立于所述网络的所述触发;

响应于所述触发，在所述网络节点处，经由所述网络接收来自所述终端的注册消息，以继而向所述网络节点注册所述终端并且经由所述网络识别所述终端；以及

基于所述终端的所述标识经由所述网络同所述终端建立通信会话。

20. 根据权利要求 19 中的所述方法，还包括:

在所述网络节点处接收来自所述发起客户端的连接请求，其中建立通信会话包括在注册所述终端后，向所述终端发送所述连接请求。

21. 根据权利要求 20 中所述的方法，其中发送所述连接请求包括通过至少一个其他网络节点从所述网络节点向所述终端发送所述连接请求。

22. 根据权利要求 20 中所述的方法，其中接收连接请求包括接收并继而在缓冲器中存储连接请求，以及其中建立通信会话包括从所述缓冲器检索所述连接请求，并继而基于所述终端的所述标识经由所述网络向所述终端发送所述连接请求。

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23. 根据权利要求 19 中所述的方法，其中从网络节点向所述终端发送触发包括从包括会话发起协议（SIP）代理的网络节点向所述终端发送触发。

24. 根据权利要求 19 中所述的方法，其中接收注册消息包括通过位于所述网络节点和所述终端之间的网络地址转换器（NAT）和防火墙（FW）中的至少一个，在所述网络节点处接收来自所述终端的注册消息，

以及其中发送触发包括以独立于所述 NAT 和 FW 中的至少一个的方式发送触发。

25. 根据权利要求 19 中所述的方法，其中接收注册消息包括接收后继注册消息，其中所述方法还包括:

在发送触发前在所述网络节点处接收来自所述终端的第一注册消息，以继而向所述网络节点注册所述终端，其中所述第一注册消息包括独立于所述网络的所述终端的标识符，以及

其中发送触发包括基于独立于所述网络的所述终端的所述标识符发送触发。

26. 根据权利要求 19 中所述的方法，其中从网络节点向所述终端发送触发包括从位于网络中的网络节点向所述终端发送触发，发起客户端能够经由所述网络进行直接或间接通信中的至少一种。

27. 根据权利要求 26 中所述的方法，其中从网络节点向所述终端发送触发包括从位于公共网络和专用网络之一的网络节点向所述终端发送触发。

28. 一种同终端建立通信会话的方法，所述方法包括:

在位于网络中的网络节点处接收注册消息，发起客户端能够经由所述网络进行通信，其中接收所述注册消息包括接收所述注册消息以继而向所述网络节点注册所述终端，以及其中所述注册消息包括独立于所述网络的所述终端的标识符；以及

触发所述终端以继而经由所述网络识别所述终端，其中触发所述终端包括基于所述终端的所述标识符触发独立于所述网络的所述终端，以

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便能够基于所述终端的标识经由所述网络同所述终端建立通信会话。

29. 根据权利要求 28 中所述的方法，还包括:

在所述网络节点处接收来自发起节点的连接请求；以及

在经由所述网络识别所述终端后，从所述网络节点向所述终端发送所述连接请求。

30. 根据权利要求 29 中所述的方法，其中发送所述连接请求包括通过至少一个其他网络节点，从所述网络节点向所述终端发送所述连接请求。

31. 根据权利要求 29 中所述的方法，其中接收连接请求包括接收并继而在缓冲器中存储连接请求，以及其中发送所述连接请求包括从所述缓冲器检索所述连接请求，并继而基于所述终端的所述标识经由所述网络向所述终端发送所述连接请求，以继而建立所述通信会话。

32. 根据权利要求 28 中所述的方法，其中在网络节点处接收注册消息包括在包括会话发起协议（SIP）代理的网络节点处接收注册消息。

33. 根据权利要求 28 中所述的方法，其中接收注册消息包括通过位于所述网络节点和所述终端之间的网络地址转换器（NAT）和防火墙（FW）中的至少一个，在网络节点处接收来自所述终端的注册消息，

以及其中触发所述终端包括以独立于所述 NAT 和所述 FW 中的至少一个的方式触发所述终端。

34. 根据权利要求 28 中所述的方法，其中接收注册消息包括接收第一注册消息，其中所述方法还包括:

响应于触发所述终端，在所述网络节点处，接收来自所述终端的后继注册消息，以继而经由所述网络识别所述终端；以及

基于所述终端的所述标识经由所述网络建立同所述终端的通信会话。

35. 根据权利要求 28 中所述的方法，其中在网络节点处接收注册消息包括在位于网络中的网络节点处接收注册消息，发起客户端能够经由所述网络进行直接或间接通信中的至少一种。

36. 根据权利要求 35 中所述的方法，其中在网络节点处接收注册

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消息包括在位于包括公共网络和专用网络之一的网络中的网络节点处接收注册消息。

37. 一种终端，包括:

能够接收来自位于网络中的网络节点的触发的控制器，发起客户端能够经由所述网络进行通信，其中所述控制器能够接收独立于所述网络的所述触发，其中所述控制器能够响应于所述触发，经由所述网络向所述网络节点发送注册消息，以继而向所述网络节点注册所述终端并经由所述网络识别所述终端，以便能够基于所述终端的标识经由所述网络同所述终端建立通信会话。

38. 根据权利要求 37 中所述的终端，其中所述控制器能够响应于所述网络节点接收来自所述发起节点的连接请求而接收所述触发，使得所述网络节点能够在注册所述终端之后向所述终端发送所述连接请求。

39. 根据权利要求 38 中所述的终端，其中所述控制器能够响应于所述网络节点接收来自所述发起节点的连接请求而接收所述触发，使得所述网络节点能够通过至少一个其他网络节点向所述终端发送所述连接请求。

40. 根据权利要求 38 中所述的终端，其中所述控制器能够响应于所述网络节点接收并继而在缓冲器中存储来自所述网络节点的连接请求而接收所述触发，以及其中所述控制器能够发送所述注册消息，使得所述网络节点能够从所述缓冲器检索所述连接请求，并继而基于所述终端的所述标识经由所述网络向所述控制器发送所述连接请求。

41. 根据权利要求 37 中所述的终端，其中所述控制器能够接收来自包括会话发起协议（SIP）代理的网络节点的触发。

42. 根据权利要求 37 中所述的终端，其中所述控制器能够通过位于所述网络节点和所述终端之间的网络地址转换器（NAT）和防火墙（FW）中的至少一个向所述网络节点发送所述注册消息，以及其中所述控制器能够以独立于所述 NAT 和所述 FW 中的至少一个的方式接收所述触发。

43. 根据权利要求 37 中所述的终端，其中所述控制器也能够在接

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收所述触发之前向所述网络节点发送第一注册消息，以继而向所述网络节点注册所述终端，其中所述第一注册消息包括独立于所述网络的所述终端的标识符，以便所述控制器能够基于独立于所述网络的所述终端的所述标识符接收所述触发，以及其中所述控制器能够响应于所述触发而发送后继注册消息。

44. 根据权利要求 37 中所述的终端，其中所述控制器能够接收来自位于网络中的网络节点的触发，发起客户端能够经由所述网络进行直接或间接通信中的至少一种。

45. 根据权利要求 44 中所述的终端，其中所述控制器能够接收来自位于包括公共网络和专用网络之一的网络中的网络节点的触发。

46. 一种位于移动网络和专用网络之一中的终端，所述终端包括:

能够向位于网络中的网络节点发送注册消息的控制器，发起客户端能够经由所述网络进行通信，其中所述控制器能够发送所述注册消息，以继而向所述网络节点注册所述终端，其中所述注册消息包括独立于所述网络的所述终端的标识符，以及其中能够基于所述终端的所述标识符独立于所述网络触发所述控制器，以继而经由所述网络识别所述终端，以便能够基于所述终端的标识经由所述网络同所述终端建立通信会话。

47. 根据权利要求 46 中所述的终端，其中响应于所述网络节点接收来自所述发起客户端的连接请求能够触发所述控制器，以及其中能够触发所述控制器，以便在经由所述网络识别所述终端后，所述网络节点能够向所述终端发送所述连接请求。

48. 根据权利要求 47 中所述的终端，其中能够触发所述控制器，使得所述网络节点能够通过至少一个其他网络节点向所述终端发送所述连接请求。

49. 根据权利要求 47 中所述的终端，其中响应于所述网络节点接收并继而在缓冲器中存储所述连接请求能够触发所述控制器，以及其中能够触发所述控制器，以便所述网络节点能够从所述缓冲器检索所述连接请求，并继而基于所述终端的所述标识经由所述网络向所述终端发送所述连接请求，以继而建立所述通信会话。

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50. 根据权利要求 46 中所述的终端，其中所述控制器能够向包括会话发起协议（SIP）代理的网络节点发送注册消息。

51. 根据权利要求 46 中所述的终端，其中所述控制器能够通过位于所述网络和所述终端之间的网络地址转换器（NAT）和防火墙（FW）中的至少一个，向所述网络节点发送所述注册消息，以及其中能够以独立于所述 NAT 和所述 FW 中的至少一个方式触发所述控制器。

52. 根据权利要求 46 中所述的终端，其中所述控制器能够发送第一注册消息，以继而向所述网络节点注册所述终端，其中所述控制器也能够响应于被触发而向所述网络节点发送后继注册消息，以继而经由所述网络识别所述终端，使得能够基于所述终端的所述标识经由所述网络同所述终端建立通信会话。

53. 根据权利要求 46 中所述的终端，其中所述控制器能够向位于网络中的网络节点发送注册消息，发起节点能够经由所述网络进行直接或间接通信中的至少一种。

54. 根据权利要求 53 中所述的终端，其中所述控制器能够向位于包括公共网络和专用网络之一的网络中的网络节点发送注册消息。

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用于同移动终端建立会话发起协议通信会话的系统和方法

技术领域

本发明总体涉及用于根据会话发起协议（SIP）建立通信会话的系统和方法，并且更特别地涉及用于同终端建立 SIP 通信会话的系统和方法。

背景技术

诸如 IPv4 的网际协议（IP）的各种版本的限制之一是其具有受限的地址空间。因而，为保存地址，企业和其他管理领域已求助于使用专用地址。专用地址是网络地址，其中的 IP 地址落入下列范围：

10.0.0-10.255.255.255，

172.16.0.0-172.31.255.266，或者

192.168.0.0-192.168.255.255。

由专用网络中的管理实体分配的专用地址仅在相应的专用网络中具有关联性。因而，这种专用地址通常在该专用网络外部不可见。然而，使用专用地址的好处是在它们相应的专用网络内部，不同的专用网络可以为主机分配相同的专用 IP 地址而不会引起任何冲突。另一方面，也可以作为网络地址端口转换器（NAPT）的网络地址转换器（NAT）可以在当位于专用网络内被分配了专用地址的主机试图向位于该发送主机的专用网络外部的主机发送 IP 数据报时使用。当向关联于 NAT 的专用网络外部发送 IP 数据报之前，NAT 将专用 IP 地址（以及可能地该数据报内的其他被选择的字段）转换为公共 IP 地址。利用 NAPT 所附加的功能，NAT 还可以从专用网络向公共网络转换诸如传输控制协议（TCP）或用户数据报协议（UDP）端口的端口。类似地，当从在关联于该 NAT 的该管理域的外部的主机向带专用地址的主机发送数据报时，

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则，该 NAT 将公共 IP 地址转换为专用 IP 地址，并且用 NAPT 所附加的功能，将公共网络中的端口转换为专用网络中的端口。

在提供地址和端口转换之外，NAT 可以同作为对所关联的专用网络的安全机制而运转的防火墙和/或网关进行通信。在这一点上，该防火墙/网关可以如此运转以提供安全性：在流入数据报通过该 NAT 的转换进程之前，和/或流出数据报通过该 NAT 的转换进程之后，该防火墙/网关可以限定这样的数据报。此外，通过将专用 IP 地址转换为公共 IP 地址，NAT 可以为同专用 IP 地址关联者提供保密措施。

在专用网络内部使用专用地址，以及在专用网络边缘使用 NAT 已经在企业中广泛接受和采用。然而，关联于 NAT 的使用存在缺点。在这一点上，认为专用网络包含，所连接到的或者否则所关联的移动网络，诸如通用分组无线业务（GPRS）网络。在此情况下，经由该移动网络进行通信的、诸如移动终端的终止节点通常可以例如根据会话发起协议（SIP）发启经由该 NAT 同该 IP 设备的通信会话。然而，IP 设备通常不能经由该 NAT 同终止节点发启类似的 SIP 通信会话。此外，由于终止节点通常缺乏如同固定 IP 地址的静态的和公共的标识，IP 设备通常不能向 NAT 识别所期望的终止节点。

由于多种原因，通常以防止 IP 设备同各自的终止节点发启 SIP 通信会话的方式对移动网络进行配置。首先，依赖于网络拓扑，即使在该网络上没有 IP 通信量的时候，在网络内部的支持到终止节点的 IP 连接可以消耗不合需要的数量的资源或降低网络性能。第二，在与许多专用网络一样的网络中，终止节点可能比可用 IP 地址多。因而，该网络可能包括动态地分配 IP 地址和/或专用 IP 地址的 NAT。第三，许多网络的安全性需要和策略要求防止多种 IP 通信量传入该网络。这样的情况也通常导致 NAT 的使用，特别地当该移动网络包括相关联的防火墙/网关时。

要克服 NAT 的这些缺点以允许 IP 设备向终止节点发启 SIP 通信会话，可以将网络配置为每一个终止节点具有唯一、固定的 IP 地址，其中向各自的域名系统（DNS）服务器输入这些地址。将该网络的 NAT

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以及其他安全部件（例如，防火墙/网关等）也配置为允许 IP 设备向终止节点发启 SIP 通信会话，并允许对向分配给终止节点的 IP 地址的通信量以及来自分配给终止节点的 IP 地址的通信量的路由。此外，例如，当终止节点连接到该网络时，可以分配需要用于同在网络中的每个终止节点的 IP 连接的网络技术专用资源。

然而，这种允许 IP 设备向终止节点发启 SIP 通信会话的技术忽视了导致 NAT 部件的使用的公共网络的限制。也就是说，这种技术忽视了可用公用 IP 地址的限制。同样，这种技术也忽视了同提供安全功能性的防火墙/网关通信的 NAT 部件的能力。因而，需要设计一种能够允许 IP 设备向在移动或专用网络中的终止节点发启 SIP 通信会话的系统，其解决有限的公共网络地址空间并对相应的网络维护防火墙和/或网关功能性。

发明内容

根据前述背景，本发明的实施方式提供了用于同终端建立会话发起协议（SIP）通信会话的改进的系统和方法，该终端通常是具有相关联的专用 IP 地址的移动终端。同用于同终端建立 SIP 通信会话的传统技术相比，本发明的实施方式允许 SIP 客户端经由公共网络从该终端（另一个 SIP 客户端）发启同该终端的 SIP 通信会话。更特别地，本发明的实施方式允许 SIP 客户端以一种方式同该终端发启 SIP 通信会话，该方式解决的可用公共 IP 地址的有限的数量，并为包括该终端的移动网络维护防火墙和/或网关功能。

根据本发明的一方面，提供了用于建立同终端（即，终止 SIP 客户端）的诸如会话发起协议（SIP）通信会话的通信会话的系统。该系统包括位于网络中的诸如 SIP 代理的网络节点，发起客户端能够经由该网络进行通信。该网络节点可以向独立于网络的终端发送触发。该网络节点也可以从该终端接收注册消息，诸如第一注册消息之后的注册消息，其中，网络节点响应于该触发接收该注册消息。在这一点上，该网络节点可以接收该注册消息，以向该网络节点注册该终端并经由该网络识别

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该终端，使得可以根据该终端的标识经由网络同该终端建立通信会话。

更特别地，该网络节点能够通过位于该网络节点和终端之间的网络地址转换（NAT）和/或防火墙（FW）接收来自该终端的注册消息。这样，该网络节点能够以独立于 NAT 和/或 FW 的方式发送该触发。该网络节点也能够在发送触发及接收后续的注册消息之前接收来自该终端的第一注册消息。在这一点上，该网络节点可以接收该第一注册消息以向该网络节点注册该终端。在此情况下，第一注册消息包括独立于网络的该终端的标识符。这样，该网络节点能够基于独立于网络的该终端的该标识符发送触发。

该系统还可以包括能够向该网络节点发送连接请求的网络节点（即，发起 SIP 客户端）。在此情况下，该网络节点可以响应于所接收的连接请求而发送触发。更特别地，该网络节点可以接收，以及因而缓冲该连接请求。因而，该网络节点可以接收该注册消息；从缓冲器中取得该连接请求；并继而基于该终端的标识符经由网络向该终端发送连接请求。

根据本发明的另一方面，同位于移动网络或专用网络中的终端建立通信会话的系统包括能够接收例如第一注册消息的注册消息的网络节点，以继而向该网络节点注册该终端。在这一点上，该注册消息包括独立于网络的该终端的标识符。该实施方式的网络节点也能够基于该终端的标识符触发独立于网络的该终端，以经由网络识别该终端。另外，该网络节点能够触发该终端，使得可以基于该终端的标识符经由网络同该终端建立通信会话。

根据本发明的其他方面，提供了用于同终端建立通信会话的终端和方法。因此，本发明的实施方式提供了用于同终端建立通信会话的改进的系统和方法。本发明的实施方式允许发起客户端同终端发启连接，而不需一个或多个额外的公共 IP 地址。本发明的实施方式还允许发起客户端发启同终端的连接，而不需绕开否则例如由 FW 提供给包括该终端的移动网络的防火墙和/或网关功能。因此，本发明的实施方式的系统和方法解决了由现有技术引起的问题并提供了额外的优点。

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附图说明

已经用通常术语如此描述了本发明，现在将参考附图，其不必按比例绘制，其中：

图 1 是根据本发明一种实施方式的通信系统示意性框图，包括公共网络和移动网络，通过这些网络，直接或间接地双向连接发起 SIP 客户端和终止 SIP 客户端；

图 2 是根据本发明的实施方式，能够作为 SIP 客户端而运转的实体的示意性框图；

图 3 是根据本发明的实施方式，可以作为 SIP 客户端而运转的移动台的示意性框图；

图 4 是根据本发明的实施方式，更特别地示出了诸如终止 SIP 客户端的 SIP 客户端向 SIP 代理注册的方法的控制流程图；以及

图 5 是根据本发明的实施方式，更特别地示出了在发起和终止 SIP 客户端之间发启通信会话的方法的控制流程图。

具体实施方式

现在将参考附图在下文中更完整地描述本发明，附图中示出了本发明的优选实施方式。然而，可以用多种不同的形式实施本发明，而不应限于此处阐明的实施方式；而是，提供这些实施方式，使得本公开是彻底和完整的，并向本领域技术人员完整的传达本发明的范围。贯穿全文，相同的数字代表相同的单元。

参看图 1，提供了将得益于本发明的系统的一种类型的说明。连同移动通信应用，主要地描述本发明的实施方式的系统和方法。然而应该理解，本发明的实施方式的系统和方法可以连同在移动通信产业内部和外部二者的多种其他应用而加以利用。

如图所示，系统 10 包括公共网络 12，诸如如同因特网的公共网际协议（IP）网络。公共网络包括大量的网络节点，其中每一个通常包含诸如服务器计算机、个人计算机、膝上计算机等的处理单元。更特别地，

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公共网络可以包括一个或多个包含固定终端 14 的网络节点，其中每一个能够在公共网络内部或经由公共网络进行通信。公共网络 12 的网络节点也可以包括诸如会话发起协议（SIP）代理的代理 16。应该明白，诸如 SIP 的呼叫模型提供了涉及多媒体会话（参看，例如，2002 年 6 月的 IETF 请求说明文档 RFC 3261，标题为：SIP: Session Initiation Protocol，其内容在此处通过参考全部引入本发明。）的应用层信令协议。该 SIP 代理因而能够接收和转发 SIP 信令消息，诸如去向和/或来自包括作为发起 SIP 客户端 20 而运转的固定终端的网络节点的 SIP 信令消息，并在下文中详细描述。

此外，公共网络 12 可以包括一个或多个域名系统（DNS）服务器 18。在这一点上，每个网络节点通常拥有关联于通常益于记起的主机 DNS 名称的唯一 IP 地址。因而，该 DNS 服务器可以将主机 DNS 名称转换为相关联的 IP 地址，使得网络通信量可以被路由到适当的网络节点。

除了公共网络 12，系统 10 包括一个或多个诸如局域网（LAN）的专用网络 24。每个专用网络，同公共网络一样，可以包括大量的网络节点。同样，如同公共网络 12，每个专用网络的网络节点可以包括一个或多个 DNS 服务器 26。同前面类似，专用网络的 DNS 服务器可以将主机 DNS 名称转换为相关联的 IP 地址，使得可以向适当的公共或网络节点路由网络通信量。专用网络也可以包括一个或多个包含移动终端 32 的网络节点，其中每一个能够在专用网络内部或者经由专用网络进行通信。终端 32 可以包括，例如，移动电话、便携式数字助理（PDA）、寻呼机、膝上计算机、智能卡以及其他类型的电子系统。

为帮助终端 32 访问专用网络，专用网络 24 可以包括一个或多个无线接入点（AP）（未示出），其中每一个可以连接到一个或多个终端。在这一点上，AP 可以包含被配置为例如按照如下技术同终端进行通信的接入点，该技术为诸如射频（RF）、蓝牙（BT）、红外（IrDA）或其他多种不同的包括 LAN 和/或 WLAN 技术的有线和/或无线网络技术。同样如同公共网络，专用网络可以包括发起 SIP 客户端 20，其在后文中更

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加详细的描述。如前所述，专用网络可以包括终止 SIP 客户端 36，其可以同发起 SIP 客户端进行通信。以及也如前所述，专用网络的一个或多个终端可以作为发起 SIP 客户端或终止 SIP 客户端而运转。

为帮助在公共网络 12 的网络节点和专用网络 24 的网络节点之间的通信，每一个专用网络可以还包括相互连接公共网络和专用网络的网络地址转换器（NAT）。如前面在背景一节中所解释的，每一个 NAT 可以为在公共网络和相应的专用网络之间进行通信，而将来自公共网络的公共 IP 地址转换为相应的专用网络的网络节点的专用 IP 地址，并且反之亦然。应该明白，NAT 也可以包括能够转换嵌入于例如应用协议数据单元（PDU）的 IP 地址的应用层网关（ALG）（未示出）。此外，NAT 可以包括或关联于用于各自的专用网络的防火墙和/或网关。于是，如图所示，包括或关联于防火墙/网关的 NAT 由 NAT/FW 28 示出。

系统 10 也可以包括一个或多个移动或蜂窝网络 30。蜂窝网络可以包括一个或多个不同数量的移动网络。在这一点上，蜂窝网络可以包含任意数量的第一代（1G）、第二代（2G）、2.5G 和/或第三代（3G）蜂窝网络，和/或任意数量的根据本发明的实施方式能够运转的其他蜂窝网络。例如，每一个蜂窝网络可以包含 GSM（全球移动通信系统）、IS-136（时分多址-TDMA）、IS-95（码分多址-CDMA）、或 EDGE（增强型数据速率 GSM 演进）网络。可选地，一个或多个蜂窝网络可以包含 GPRS（通用分组无线业务）或基于 GPRS 的（例如，通用移动通信系统-UMTS）网络。

如同公共和专用网络 12、24，蜂窝网络 30 也包括一个或多个网络节点。在这点上，每个蜂窝网络的网络节点可以包括可以在各自的蜂窝网络内部和/或经由各自的蜂窝网络进行通信的一个或多个移动终端 32。以及如前所述，一个或多个移动终端能够作为发起 SIP 客户端 20 而运转，诸如同公共以及专用网络中的发起客户端节点的同样方式。此外，也如前所述，一个或多个移动终端可以作为终止 SIP 客户端 38 而运转，该终止 SIP 客户端 38，如前文所指出以及下文所描述的，可以根据 SIP 通过 SIP 代理 16 而同发起 SIP 客户端通信。

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在蜂窝网络 30 中，网络节点也可以包括一个或多个诸如一个或多个 SGSN（信令 GPRS 支持节点）38 的网络信令支持节点，以及一个或多个诸如 GGSN（网关 GPRS 支持节点）40 的网关支持节点。例如，网络节点可以包括一个或多个 SGSN 以及一个或多个 GGSN，如同在 3G 合作伙伴计划（3GPP）中的大量规范所描述的。本领域的技术人员应该明白，当该终端涉及同此类网络节点的通信会话时，SGSN 能够路由去向以及来自移动终端 32 的通信，并且提供到其他网络节点的连接。另一方面，GGSN 能够相互连接蜂窝网络和专用网络 24。在这一点上，众所周知，GGSN 能够进行传统网关的活动。应该注意到，尽管蜂窝网络可以包括 SGSN 以及 GGSN，但是蜂窝网络可以为其他类型的蜂窝网络而包含其他类似的运转网络节点。

现在参看图 2，根据本发明的一种实施方式，其示出了能够在公共网络 12、专用网络 24 或蜂窝网络 30 中作为网络节点（例如，SIP 代理 16、发起 SIP 客户端 20、NAT/FW 28、终止 SIP 客户端 36、SGSN 38、GGSN 40 等）而运转的实体的框图。尽管在一些实施方式中示作分离的实体，一个或多个实体可能支持一个或多个逻辑上分离但在该一个或多个实体内共同存在的网络节点。例如，单一的实体可能支持逻辑上分离但共同存在的发起 SIP 客户端和 SIP 代理。例如，也如上文所指出的，单一的实体可能支持逻辑上分离但共同存在的 NAT 和防火墙/网关。

如图所示，能够作为网络节点而运转的实体通常可以包括控制器 42、连接到存储器 44 的处理器等。该控制器也可以连接到至少一个接口 46 或其他用于传输和/或接收数据、内容等的装置。存储器可以包括易失性和/或非易失性存储器，并且通常存储内容、数据等。例如，根据本发明的实施方式，存储器通常存储用于该控制器执行关联于该实体的操作的步骤的软件应用、指令等。例如，该存储器通常也存储由该网络节点发送或接收的内容。

图 3 示出了根据本发明的实施方式，可以作为移动终端 32 以及同样地作为发起 SIP 客户端 20 或终止 SIP 客户端 36 而运转的移动台的功能框图。应该理解，该被示出并在下文中描述的移动台仅是说明能从本

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发明中受益的一种类型的移动终端，因而，不应成为对本发明的范围的限制。虽然移动台的一些实施方式被示出并将在下文中为举例的目的而描述，但是诸如便携式数字助理（PDA）、寻呼机、膝上计算机以及其他类型的语音和文本通信系统的其他类型的移动终端可以容易的使用本发明。

移动台包括传送器 48、接收器 50、以及分别地为该传送器和接收器提供信号并从该发送器和接收器接收信号的控制器 52。这些信号包括根据该可应用的蜂窝系统的空中接口标准的信令信息，以及用户语音和/或用户生成的数据。在这点上，移动台可以利用一个或多个空中接口标准、通信协议、调制类型以及接入类型来运转。更特别地，移动台可以根据多个 1G、2G、2.5G 和/或 3G 通信协议等中的一些而运转。例如，移动台可以根据 2G 无线通信协议 IS-136（TDMA）、GSM 以及 IS-95（CDMA）而运转。例如，移动台也可以根据 2.5G 无线通信协议 GPRS、增强型数据速率 GSM 演进（EDGE）等而运转。同双模或更高模式的移动台（例如，数字/模拟或 TDMA/CDMA/模拟电话）一样，一些窄带 AMPS（NAMPS）以及 TACS 移动台也可能从本发明的实施方式中获益。

应该理解，控制器 52 包括用于实现移动台的音频和逻辑功能而需要的电路。例如，控制器可以包含数字信号处理器设备、微处理器设备以及多种模拟到数字转换器、数字到模拟转换器以及其他支持电路。根据其各自的能力，在这些设备之间分配移动台的控制和信号处理功能。因而控制器也包括在调制和传输之前进行卷积编码以及插入消息和数据的功能。控制器可以额外地包括内部语音编码器（VC）52A，并可以包括内部数据调制解调器（DM）52B。此外，控制器可以包括操作可以存储于存储器中的一个或多个软件应用的功能。

移动台也包含包括传统耳机或扬声器 54、振铃 56、麦克风 60、显示器 62 以及用户输入界面的用户接口，所有这些都连接到控制器 52。这些允许移动台接收数据的用户输入界面可以包括允许移动台接收数据的任意数量的设备，诸如小键盘 64、触摸屏（未示出）或其他输入设备。在包含小键盘的实施方式中，小键盘包括传统的数字（0-9）及相

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关的键（#，*），还包括用于操作该移动台的其他键。

尽管未示出，移动台可以还包括红外收发信机或另一个本地数据传输设备，这样，可以同其他设备共享和/或从其他设备获得数据，其他设备诸如移动台、汽车导航系统、个人计算机、打印机、包括条码的印刷材料等。数据的共享，以及数据的远程共享，也可以根据多种不同的技术而提供。例如，如同本领域内的技术人员知道的，移动台可以包括能够同其他射频收发信机和/或射频识别（RFID）应答器标签共享数据的 RF 收发信机。此外或可选地，移动台可以使用由蓝牙技术联盟开发的 BT 商标的无线技术共享数据。此外，移动台可以根据包括 LAN 和/或 WLAN 技术的多种不同的有线和/或无线网络技术共享数据。

移动台也可以包括诸如用户识别模块（SIM）66、可移动用户识别模块（R-UIM）等的存储器，其通常存储同移动用户相关的信息元素。除了 SIM，移动台可以包括其他存储器。在这一点上，移动台可以包括可以嵌入其中和/或可移动的易失性存储器 68 以及非易失性存储器 70。例如，其他非易失性存储器可以包含嵌入的或可移动的多媒体存储器卡（MMC）、由索尼公司生产的记忆棒、EEPROM、闪速存储器、硬盘等。存储器可以存储任意数量的由移动台使用以实现移动台功能的信息和数据段。例如，存储器可以存储能够唯一地识别移动台的标识符，诸如国际移动设备识别（IMEI）码、国际移动用户识别（IMSI）码、移动台综合业务数字网（MSISDN）码等。存储器也可以存储内容，诸如要向发起 SIP 客户端 20 传送或从发起 SIP 客户端 20 接收的内容。

如在背景一节中所指出的，用于允许诸如发起 SIP 客户端 20 的 IP 设备发起同诸如移动终端的终止 SIP 客户端 36 的通信的传统的技术，忽视了如同公共网络 12（例如，因特网）的公共域的限制，其将导致使用 NAP/FW 28 连接公共网络和各自的专用网络 24。即，这种技术忽视了可用公共 IP 地址的限制。这种技术也忽视了向各自的专用网络提供防火墙和/或网关功能的 NAP/FW 的能力。因而，本发明的实施方式为同终止节点的通信提供了改进的系统和方法，其中终止节点位于蜂窝或其他移动网络中。更特别地，本发明的实施方式，提供了允许发起 SIP

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客户端发启同终止 SIP 客户端的 SIP 连接的系统和方法，同时解决了公共域的有限地址空间。此外，该系统和方法可以，但不是必须，允许发起节点发启同终止节点的 IP 连接，同时维护对移动网络的防火墙和/或网关功能。如前所述，发起 SIP 客户端发启同包含在蜂窝网络 30 内部的终端的终止 SIP 客户端的通信。然而应该理解，终止 SIP 客户端可以可选地包含专用网络的网络节点，而不背离本发明的精神和范围。

如同本领域技术人员众所周知的，SIP 是可以建立、修改和终止多媒体会话或呼叫的应用层控制协议。SIP 是基于文本的，完全使用 ISO 10646 中的 UTF-8 编码。除了 SIP 可以使用用户数据报协议（UDP）或传输控制协议（TCP）承载事务处理以外，该消息的语法类似于 HTTP。SIP 消息的特性通常表现为请求或响应，并且其可以遵照以下格式而创建，即 1982 年 8 月的因特网工程任务组（IETF）的请求说明文档 RFC 822，题目为：Standard for the Format of ARPA Internet Text Messages，其内容在此通过参考整体引入本发明。

通常，涉及 SIP 会话的实体包括用户代理（例如，发起 SIP 客户端 20、终止 SIP 客户端 36 等）、SIP 代理 16、域名注册服务商以及位置服务。用户代理可以作为发启 SIP 请求的客户端（UAC）而运行。用户代理也可以作为在接收到 SIP 请求时联系该用户，并代表用户回送响应的服务器（UAS）而运转。如前面所指出的，SIP 代理 16 包含可以如同客户端和服务器而同时运行的中间实体。在这一点上，在向其他服务器转发之前，SIP 代理可以中断并修改 SIP 请求。在 SIP 代理中实现的域名注册服务商，接受用户注册（例如，REGISTER 消息）并可以使该信息通过也可以在 SIP 代理中实现的位置服务可用。因而，位置服务包含由 SIP 代理所使用的单元以获得关于终止 SIP 客户端 36 的可能位置的信息。

SIP 消息通常包括起始行、一个或多个头部字段、空行（回车换行-CRLF）以及可选的消息体。通常，SIP 消息的起始行指明该消息是请求（例如，INVITE、ACK、OPTIONS、BYE、CANCEL、REGISTER 等）还是响应（例如，100 信息、200 成功、300 重定向、400 客户端错

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误、500 服务器错误、600 全局失败，等）。消息头部可以包括多个头部指示，例如，源（“From:”）、目的地（“To:”）、呼叫标识符（“Call-ID:”）、消息序号（“Cseq:”）、联系人（“Contact”）、事务处理路径（“Via:”）、长度（“Content-Length”），以及如果在消息中承载的话，消息体的内容（“Content-Type:”）。另一方面，消息体可以包括任意数量的不同类型的数据，对其的解释通常依赖于消息的类型。通常，消息体的内容可以包含遵循诸如会话描述协议（SDP）、文本或可扩展标记语言（XML）脚本的特定格式的会话描述。在这一点上，“Content-Type”头部字段给出了消息体的媒体类型。如果消息体是经过编码的，这种编码通常在“Content-Encoding”头部字段中指出，并且消息体的长度通常在“Content-Length”头部字段中给出。

通过 SIP 寻址的实体可以包括可以通过支持此类用户的 SIP 代理 16 访问的用户，其中，用户可以由 SIP 统一资源定位符（URL）识别。通常，在 SIP 消息内部使用 SIP URL 以指示，例如，SIP 请求的发起方（From）、在起始行中的当前目的地（请求 URL）以及最终接收方（To）。应该明白，URL 使用诸如“user@host”的形式，其中“user”通常识别用户（例如，用户明、电话号码等）而“host”识别支持该用户的 SIP 代理（例如，域名、IP 地址等）。在这一点上，特别是当 URL 包括各自的 SIP 代理的域名时，SIP URLs 可以用于基于通过 DNS 服务器 18 的域名到 IP 地址转换的用户定位。在这一点上，发起方可以查询包含目的地址的 DNS 服务器，而该目的地址中包含 SIP 代理的域名。

如前面所指出的，系统 10 可以包括发起 SIP 客户端 20 以及终止 SIP 客户端 36。通常，发起 SIP 客户端能够请求通过支持该终止 SIP 客户端的 SIP 代理 16 的同该终止 SIP 客户端的连接。通常，发起 SIP 客户端也可以作为 SIP 通信会话的对等节点而运转。同样地，终止节点可以作为 SIP 通信会话的另一个对等节点而运转。以及对于本领域内的技术人员众所周知的，SIP 代理可以从发起 SIP 客户端向终止 SIP 客户端转发 SIP 信令消息，并且反之亦然。然而，不同于传统的 SIP 通信技术，当终止 SIP 客户端位于来自发起 SIP 客户端的 NAT/FW 28 之后时，如果

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发起 SIP 客户端希望发启同终止 SIP 客户端 SIP 通信会话，SIP 代理可能无法经由 NAT/FW 识别终止 SIP 客户端。更特别地，例如，当 NAT/FW 不再为终止 SIP 客户端维护转换表条目，或当 SIP 代理不再为由到终止 SIP 客户端的 NAT/FW 所分配的公共 IP 地址和端口维护注册时，SIP 代理可能无法识别终止 SIP 客户端。

然而，根据本发明的实施方式，IP 代理 16 能够向独立于公共和专用网络 12、24 的终止 SIP 客户端 36 发送非基于 IP 的触发，以指示终止 SIP 客户端重新例如经由 NAT/FW 28 向 SIP 注册。例如，SIP 代理能够向 SIP 客户端发送短消息服务（SMS）消息、增强型消息服务（EMS）消息、多媒体消息服务（MMS）消息或无线应用协议（WAP）推送触发。响应于该触发，终止 SIP 客户端可以向 SIP 代理重新注册，这样发起 SIP 客户端可以因而通过 SIP 代理同终止 SIP 客户端进行通信。更特别地，响应于该触发，终止 SIP 客户端可以通过 NAT/FW 向 SIP 代理注册，这样 NAT/FW 分配给终止 SIP 客户端公共 IP 地址，因而使得 SIP 代理可以注册包括被分配的公共 IP 地址的终止 SIP 客户端。

为允许 SIP 代理 16 向终止 SIP 客户端 36 发送非基于 IP 的触发，SIP 代理能够识别终止 SIP 客户端，该终止 SIP 客户端独立于公共和专用网络 12、24 的 IP 通信信道，并继而在独立于 NAT/FW 28 的通信信道之上。例如，SIP 代理能够识别 MSISDN 或关联于终止 SIP 客户端的其他标识符。然后，基于 MSISDN，SIP 代理可以向终止 SIP 客户端发送 SMS、EMS、MMS 或 WAP 推送触发。在这一点上，SIP 代理能够用大量不同的方式识别终止 SIP 客户端的非基于 IP 的标识符。在应该有利的实施方式中，在 SIP 代理从发起 SIP 客户端 20 接收到同终止 SIP 客户端进行通信的请求前，终止 SIP 客户端向 SIP 代理注册。由于终止 SIP 客户端向 SIP 代理注册，因而该终止 SIP 客户端可以向 SIP 代理发送在 IP 通信信道外部的终止 SIP 客户端的标识符（例如，MSISDN）。

应该明白，在不同的情况下，终止 SIP 客户端 36 和 SIP 代理 16 可以具有预先存在的信赖关系。在这种情况下，终止 SIP 客户端的非基于 IP 的标识符可以基于此种信赖关系。在其他情况下，终止 SIP 客户端以

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及 SIP 代理可以不具有预先存在的信赖关系。在这些情况下，终止 SIP 客户端和 SIP 代理可以，但不是必须，例如根据任何数量的不同技术建立信赖关系。然后，在建立此种信赖关系之前，SIP 代理可以通过不同于用于发送非基于 IP 的触发的、基于 IP 的标识符的终端的非基于 IP 的标识符，同终止 SIP 客户端进行通信，以便建立信赖关系。接下来，一旦建立的信赖关系，SIP 代理可以通过用于可信赖的通信的非基于 IP 的标识符向终端发送非基于 IP 的触发。

现在参考图 4 和 5，其根据本发明的实施方式，分别地示出了终止 SIP 客户端 36 向 SIP 代理 16 注册，以及发起 SIP 客户端 20 通过 SIP 代理发启同终止 SIP 客户端的通信的示例。为在图 4 和 5 中示出的示例的目的，认为终止 SIP 客户端具有专用 IP 地址："10.11.12.13"，以及能够由用户"client_A"和主机域名"terminal_name"（即，URL："client_A@terminal_name"）识别。此外，认为终止 SIP 客户端具有 MSISDN："3581234567"。同样，例如，认为发起 SIP 客户端 20 具有公共 IP 地址："192.31.10.1"，以及 SIP 代理具有公共 IP 地址："192.21.200.1"。还认为虑 NAT/FW 28 能够在 IP 地址池"192.21.200.123-192.21.200.223"中分配一个或多个 IP 地址。

如图 4 所示，终止 SIP 客户端 36 可以经由相应的 NAT/FW 28 通过向 SIP 代理发送 SIP REGISTER 消息向 SIP 代理 16 注册。该 SIP REGISTER 消息可以包括诸如上面所述的任意数量的信息段。例如，SIP REGISTER 消息的头部字段可以包括识别终止 SIP 客户端 36 的专用 IP 地址的源和第一开放通信端口（"From:10.11.12.13,5060"）。应该明白，前述的该第一开放通信端口可以包括"5060"，其响应于为根据 UDP 或 TCP（或流控制传输协议-SCTP）而发送的 SIP 消息而保留的通信端口。例如，头部字段也可以包括识别 SIP 代理的公共 IP 地址的目地和该第一开放通信端口（"To:192.21.200.1,5060"），以及识别终止 SIP 客户端的用户和域名的联系人（"Contact:sip:client_A@terminal_name"）。根据本发明的实施方式，头部字段还可以包括终止 SIP 客户端的非基于 IP 的标识符。例如，头部字段还可以包括该终止 SIP 客户端的 MSISDN

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（“MSISDN: 3581234567”）。

响应于 SIP REGISTER 消息，NAT/FW 28 可以为终止 SIP 客户端 36 创建新的转换表条目，该转换表条目将终止 SIP 客户端的专用 IP 地址（例如，“10.11.12.13”）同公共 IP 地址以及第二开放端口相关联。例如，NAT/FW 可以将公共 IP 地址“192.21.200.123”以及第二开放通信端口“32456”同终止 SIP 客户端相关联。在创建新的转换表条目以允许中间结点和 NAT/FW 之间的通信之外，如果需要，NAT/FW 也可以增加允许通过该第二开放通信端口的来自 NAT/FW 的通信以及通过该第一开放通信端口的到 SIP 代理 16 的通信的新的防火墙（FW）过滤器。

在创建新的转换表条目之后，NAT/FW 28 可以将 SIP REGISTER 消息的头部字段中的专用地址和端口转换为由 NAT/FW 分配给终止 SIP 客户端 36 的公共 IP 地址和端口。这样，继续前面的例子，NAT/FW 可以将包括“From:10.11.12.13,5060”的源头部转换为包含“From:192.21.200.123,32456”的源头部。同样，依赖于 NAT/FW 的 ALG 的操作，可以转换识别终止 SIP 客户端的用户和域名的联系人，以识别由 NAT/FW 分配给终止 SIP 客户端的公共 IP 地址和端口。接下来，在转换 SIP REGISTER 消息的地址和端口之后，NAT/FW 可以将该 SIP REGISTER 消息传递给 SIP 代理 16 用于注册。

当接收到经过转换的注册消息，SIP 代理 16 可以为该终止 SIP 客户端 36 创建新的注册条目，或更新已有的注册条目。例如，注册条目可以包括由 NAT/FW 28 分配给终止 SIP 客户端的公共 IP 地址和端口，以及识别终止 SIP 客户端的用户和域名的联系人（“Contact:sip:client_A@terminal_name”）。在这一点上，SIP 代理可以将终止 SIP 代理的用户和域名绑定到由 NAT/FW 分配给终止 SIP 客户端的公共 IP 地址和端口。除公共地址和端口之外，并根据本发明的实施方式，注册条目可以包括终止 SIP 客户端的非基于 IP 的标识符（例如，“MSISDN:3581234567”）。

在为终止 SIP 客户端 36 创建或更新注册条目之后，SIP 代理 16 可以确认该注册条目的接收和创建/更新。在这一点上，SIP 代理可以通过

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NAT/FW 28 向终止 SIP 客户端发送诸如 200 OK 消息的确认。如同众所周知的，例如，200 OK 消息可以包括具有任意数量的不同消息段的头部字段。例如，200 OK 消息的头部可以包括识别 SIP 代理的公共 IP 地址和第一开放端口的源（“From:192.21.200.1,5060”）。例如，头部字段也可以包括识别分配给终止 SIP 客户端的公共 IP 地址和第二开放端口的目的地（“To:192.21.200.123,32456”）。

响应于 200 OK 消息，NAT/FW 28 可以将分配给终止 SIP 客户端 36 的公共 IP 地址和第二通信端口转换为该终止 SIP 客户端的专用 IP 地址和第一通信端口。因而，例如，NAT/FW 可以将包含“To:192.21.200.123,32456”的目的地头部转换为包含“To:10.11.12.13,5060”的目的地头部。然后，NAT/FW 可以将所转换的 200 OK 消息传递给终止 SIP 客户端。

用终止 SIP 客户端 36 向 SIP 代理 16 的注册，SIP 代理可以向终止 SIP 客户端转发 SIP 消息。然而，在多种情况下，诸如在“生存时间”周期之后，NAT/FW 28 可以为终止 SIP 客户端移除转换表条目。此外或可选地，例如，SIP 代理可以停止为终止 SIP 客户端维护包括由 NAT/FW 分配给终止 SIP 客户端的公共 IP 地址和端口的注册条目。在其他情况下，应该明白，SIP 代理也许无法经由 NAT/FW 识别该终止 SIP 客户端，而不能通过 NAT/FW 向该终止 SIP 客户端转发 SIP 消息。

现在参考图 5，其示出了示例性的情况，其中 SIP 代理 16 不能经由 NAT/FW 28 识别终止 SIP 客户端 36。如图所示，发起 SIP 客户端 20 期望向终止 SIP 客户端 36 发启 SIP 通信会话。要发启通信，发起 SIP 客户端可以向终止 SIP 客户端发送 SIP INVITE 消息。在这一点上，发起 SIP 客户端可以向支持该发起 SIP 客户端的 SIP 代理 16 发送 SIP INVITE 消息，该 SIP 代理 16 可以与支持终止 SIP 客户端的 SIP 代理相同或不同。该支持发起 SIP 客户端的 SIP 代理接下来可以向支持终止 SIP 客户端的 SIP 代理（在图 6 中示出）转发该 SIP INVITE 消息。在这一点上，该 SIP INVITE 消息可以被直接转发到支持终止 SIP 客户端的 SIP 代理，或诸如通过一个或多个中间的 SIP 代理，间接地向支持终止 SIP 客户端

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的 SIP 代理转发。接下来，如下所述，除非另外声明，SIP 代理指代该支持终止 SIP 客户端的 SIP 代理。

本领域的技术人员应该理解，SIP INVITE 消息可以包括任意数量的不同消息段。例如，SIP INVITE 消息的头部字段可以包括识别发起 SIP 客户端 20 及第一开放通信端口（“From:192.31.10.1,5060”）的公共 IP 地址的源。更特别地，该源头部字段可以识别支持发起 SIP 客户端以及第一开放端口的 SIP 代理的公共 IP 地址。例如，该头部字段也可以包括识别终止 SIP 客户端 36（“To:sip:client_A@terminal_name”）的用户和域名的目的地。

在接收到该 SIP INVITE 消息后，SIP 代理 16 可以为该终止 SIP 客户端 36 的用户和域名搜索其注册条目以找到其中一个条目。然而，在各种情况下，SIP 代理可以认识到 NAT/FW 28 已经，例如基于“生存时间”周期，移除了该终止 SIP 客户端的转换表条目，或该 SIP 代理已经停止维护该终止 SIP 客户端的注册条目。在这些情况下，SIP 代理可以从终止 SIP 客户端的先前的终止 SIP 客户端的注册条目取回该终止 SIP 客户端的非基于 IP 的标识符（例如，(“MSISDN:3581234567”)）(见图 5)。此外，SIP 代理可以在诸如 SIP 代理的存储器（例如，存储器 44）中缓冲来自发起 SIP 客户端 20 的 SIP INVITE 消息。并且，应该明白，在各种情况下，如下所述，在 SIP 代理能处理 SIP INVITE 消息前，发起 SIP 客户端可以发送多于一条的 SIP INVITE 消息。在这类情况下，SIP 代理可以维护该 SIP INVITE 消息的缓冲器，诸如通过用每个后续的从发起 SIP 客户端到终止 SIP 客户端的 SIP INVITE 消息重写该 SIP INVITE 消息。

在取回该终止 SIP 客户端 36 的非基于 IP 的标识符后，SIP 代理 16 可以根据该非基于 IP 的标识符向终止 SIP 客户端发送非基于 IP 的触发，从而指令该终止 SIP 客户端向该 SIP 代理重新注册。例如，SIP 代理可以经由独立于公共以及专用网络 12、24 的蜂窝网络 30 以及 NAT/FW，向终止 SIP 客户端发送 SMS 消息、EMS 消息、MMS 消息或 WAP 推送触发。该非基于 IP 的触发可以包括指令终止 SIP 客户端向 SIP 代理重新

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注册的任意数量的不同信息段。此外，该非基于 IP 的触发可以识别发起 SIP 客户端。在这种情况下，基于该发起 SIP 客户端的标识，该终止 SIP 客户端可以决定是否向该 SIP 代理重新注册。

响应于该触发，终止 SIP 客户端 36 可以向 SIP 代理 16 重新注册，使得 NAT/FW 28 可以重新为该终止 SIP 客户端分配公共 IP 地址和通信端口，并且该 SIP 代理可以更新其终止 SIP 客户端的注册条目。更特别地，同前面一样，一旦终止 SIP 客户端收到该触发，该终止 SIP 客户端可以通过各自的 NAT/FW 向 SIP 代理发送 SIP REGISTER 消息，其中该 SIP RESIGER 消息可以再次包括该终止 SIP 客户端的非基于 IP 的标识符（例如，MSISDN）。响应于该 SIP REGISTER 消息，NAT/FW 28 可以再次创建该终止 SIP 客户端 36 的新转换表条目，该转换表条目将该终止 SIP 客户端的专用 IP 地址（即，“10.11.12.13”）同公共 IP 地址（例如，“192.21.200.124”）及第二（或第三）开放通信端口（例如，第三通信端口 “32457”）相关联。

在创建新的转换表条目后，NAT/FW 28 可以将来自终止 SIP 客户端 36 的 SIP REGISTER 消息的头部字段中的专用 IP 地址和端口转换为由 NAT/FW 分配给该终止 SIP 客户端的公共 IP 地址和端口。然后，NAT/FW 可以将该转换后的 SIP REGISTER 消息传递给 SIP 代理 16 以用于注册。同前面一样，当接收到该经过转换的注册消息，该 SIP 代理可以为终止 SIP 客户端更新先前的注册（参考图 5）。同前面一样，该注册条目也可以包括该终止 SIP 客户端的非基于 IP 的标识符（例如，MSISDN）。

在更新了终止 SIP 客户端 36 的注册条目之后，SIP 代理 16 可以确认该注册条目的接收和创建/更新。同前面一样，例如，SIP 代理可以经由 NAT/FW 28 向终止 SIP 客户端发送 200 OK 消息。然后，SIP 代理基于该终止 SIP 客户端的用户和域名，从其各自的注册条目中检索分配给该终止 SIP 客户端的公共 IP 地址及端口，该终止 SIP 客户端的用户和域名包含于被缓冲的 SIP INVITE 消息和各自的注册条目之中。然后，SIP 代理可以检索该被缓冲的 SIP INVITE 消息，并用所分配的公共 IP 地址和端口（“To:192.21.200.124,32457”）转换识别该终止 SIP 客户端的用户

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和域名的目的地（“To:sip:client_A@terminal_name”）。

在对该 SIP INVITE 消息进行转换以包括所分配的终止 SIP 客户端 36 的公共 IP 地址和端口之后，SIP 代理 16 可以同过 NAT/FW 28 向该终止 SIP 客户端转发该 SIP INVITE 消息。在这一点上，NAT/FW 可以从 SIP 代理接收 SIP INVITE 消息，并基于该终止 SIP 客户端的所分配的公共 IP 地址和通信端口（包括在所转换的 SIP INVITE 消息中）查找该终止 SIP 客户端的转换表条目。接下来，NAT/FW 可以将该 SIP INVITE 的目的地从所分配的公共 IP 地址和通信端口转换为该终止 SIP 客户端的专用 IP 地址和第一通信端口。例如，NAT/FW 可以将包含“To:192.21.200.124,32457”的目的地头部字段转换为包含“To:10.11.12.13,5060”的目的地头部字段。

在转换该 SIP INVITE 消息的目的地头部之后，NAT/FW 28 可以基于该发起 SIP 客户端的专用 IP 地址和第一通信端口向发起 SIP 客户端 36 转发该 SIP INVITE 消息。然后，发起 SIP 客户端可以确认该 SIP INVITE 的接收。在这一点上，发起 SIP 客户端可以通过 NAT/FW 28 以及 SIP 代理 16 向该发起 SIP 客户端发送 200 OK 消息。例如，该 200 OK 消息可以包括识别发起 SIP 客户端的专用 IP 地址及第一端口的源头部字段（“From:10.11.12.13,5060”），以及识别终止 SIP 客户端 20 的公共 IP 地址及第一通信端口的目的地头部字段（“To:192.31.10.1,5060”）。

响应于该 200 OK 消息，NAT/FW 28 可以将专用 IP 地址及第一通信端口转换为从终止 SIP 客户端 36 的转换表条目中所分配的公共 IP 地址及第三通信端口。其后，NAT/FW 可以将所转换的 200 OK 消息传送给可以向发起 SIP 客户端转发该 200 OK 消息的 SIP 代理 16。如同本领域技术人员可以明白的，当接收到该 200 OK 消息时，根据包括在该 SIP INVITE 以及 200 OK 响应中的会话参数，可以建立在发起 SIP 客户端 20 和终止 SIP 客户端之间的通信会话，使得发起和终止 SIP 客户端可以进行通信。例如，根据任意数量的不同协议，发起和终止 SIP 客户端可以参与到多媒体通信会话中。

此外，如这里所述的，终止 SIP 客户端 36 位于来自发起 SIP 客户

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端 20 的 NAT/FW 28 之后。然而应该明白，该终止节点可以位于防火墙/网关（FW）之后，而没有 NAT 位于终止 SIP 客户端和发起 SIP 客户端之间。在这类情况下，本发明的实施方式可以允许发起 SIP 客户端向终止 SIP 客户端发启通信，在这些情况下的通信可能否则为 FW 所约束，从而为包括该终端的网络维护防火墙和/或网关的功能。

例如，如本领域的技术人员应该明白的，包括用于专用/公共地址转换的 NAT 的系统 10 是典型的根据 IP 版本 4（IPv4）进行通信的网络。然而应该理解，该系统或其部分可以可选地配置为根据支持比 IPv4 更长的 IP 地址的 IP 版本 6（IPv6）进行通信。在这一点上，由于 IPv6 支持比 IPv4 更长的 IP 地址，一个或多个专用网络可以不需要 NAT 来执行地址/端口转换。在此类情况下，系统可以不包括 NAT 或 NAT/FW，但作为替代的，包括例如以上文所述的相同方式，作为相关联的专用网络的安全机制而运转的防火墙/网关（FW）。因而，尽管终止节点可以有相关联的 IPv6 地址，但是该系统可以如上文所述而运转。如此，在发起 SIP 客户端和终止 SIP 客户端之间的通信的源或目的地，可以识别该终止 SIP 客户端的公共 IPv6 地址并传递，而不需从公共的 IPv4 地址向专用 IPv4 地址的转换，反之亦然，其中该源和目的地否则将识别由 NAT 转换为专用 IPv4 地址的、该终止节点的所分配的公共 IPv4 地址。

本发明所属领域的技术人员获益于前面的说明书以及相关附图中所展示的启示，将联想到本发明的许多修改以及其他实施方式。因此，应该理解，本发明不应限于所公开的特定实施方式，并且修改和其它实施方式将被包括在所附权利要求书的范围内。尽管在此使用了特定的术语，但其仅用于普通的和描述性的意思，而非用于限制的目的。

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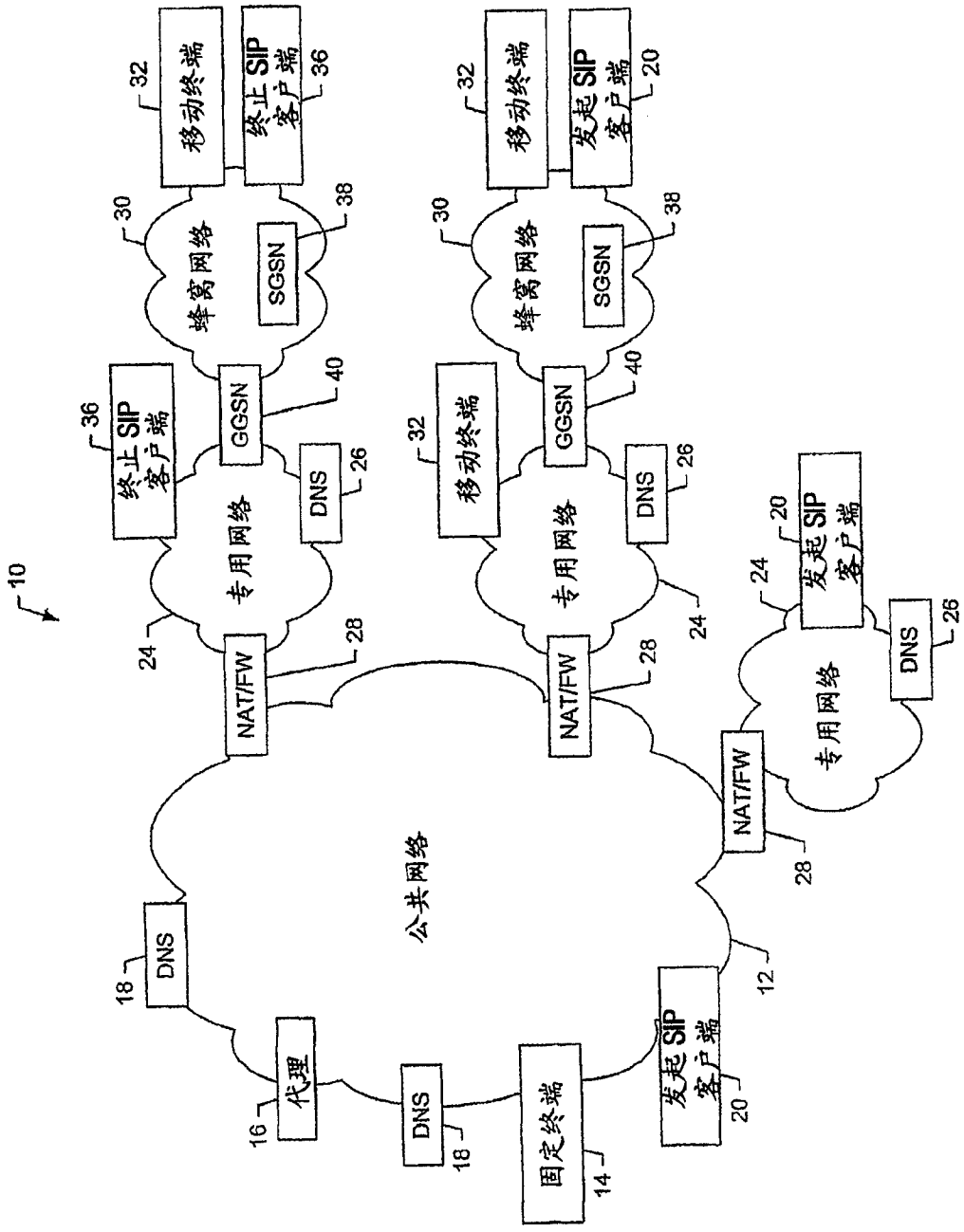


图 1

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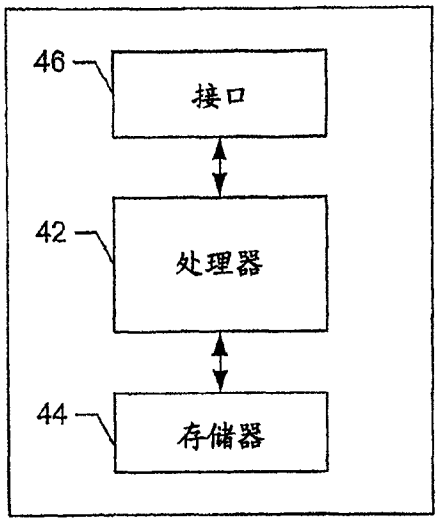


图 2

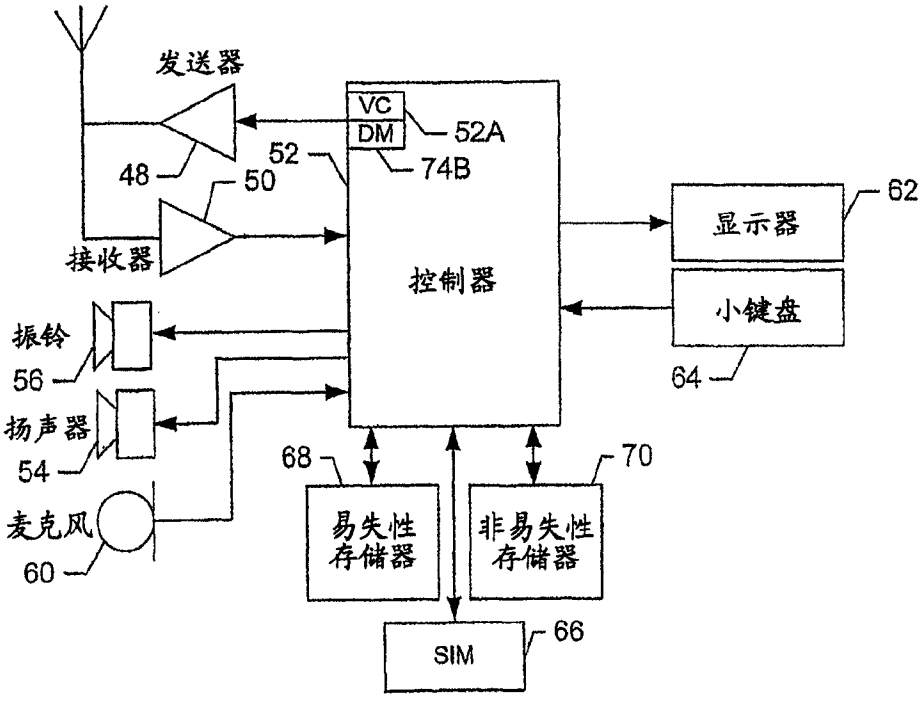


图 3

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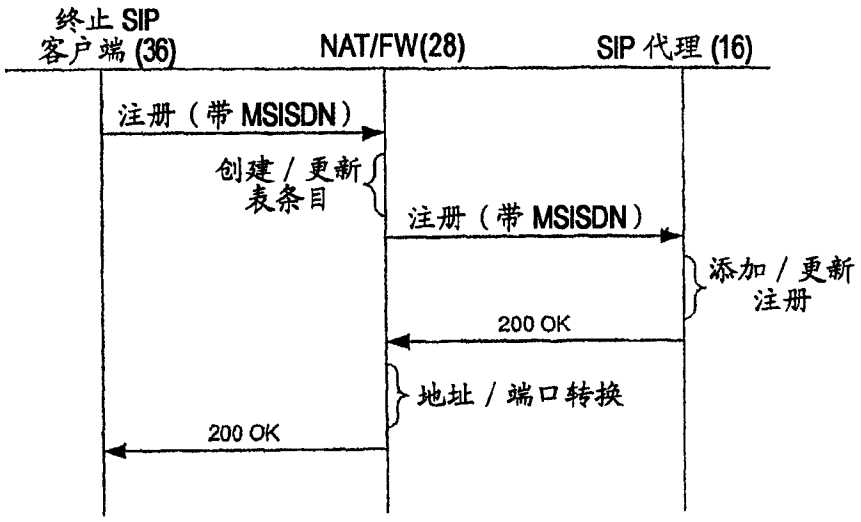


图 4

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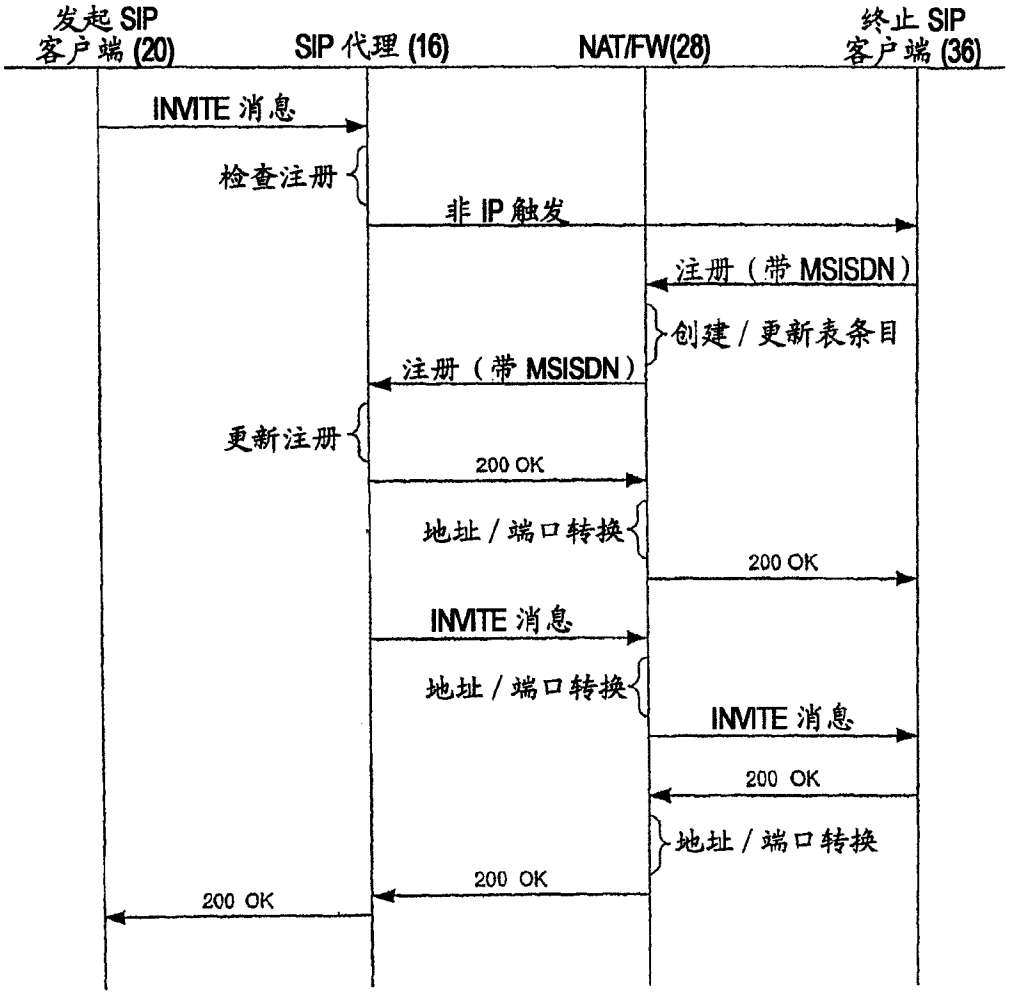


图 5

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Patents CN1976346

Method system and apparatus for realizing video frequency cosharing Business

Abstract

A method for realizing video shared service includes informing called user terminal to log on IMS core network of called attribution network by mode of sending short message to called user terminal from application server, realizing video shared service with calling user terminal after called user terminal is logged on IMS core network of called attribution network. The system used for realizing said method is also disclosed.

Classifications

» H04L65/1073 Registration or de-registration

View 6 more classifications

CN1976346A

China

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Show all events

Info: Patent citations (20), Cited by (11), Legal events, Similar documents, Priority and Related Applications

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Claims (20)

Hide Dependent

1, a kind of method that realizes video sharing service is characterized in that, this method may further comprise the steps:

The video sharing request that call subscriber terminal will contain the called user terminal sign sends to application server;

After described application server determines that called user terminal is not registered to the IMS registers kernel network of called home network, the IMS core net of notifying described called user terminal to be registered to called home network, described called user terminal activate the GPRS connection and register in the IMS of described called home network core net;

Call subscriber terminal and called user terminal carry out video to be shared.

2, method according to claim 1, it is characterized in that, if described call subscriber terminal and described called user terminal belong to consolidated network, the step that the video sharing request that then described call subscriber terminal will contain called user terminal sign sends to application server comprises:

The video sharing request that described call subscriber terminal will contain called user terminal sign sends to the IMS core net of home network, the IMS core net of described home network sends to application server with this video sharing request;

Described application server is verified called user terminal according to this called user terminal sign, is judged that called user terminal is the IMS core net that is registered to called home network.

3, method according to claim 1, it is characterized in that, if call subscriber terminal and called user terminal belong to heterogeneous networks, the step that the video sharing request that then described call subscriber terminal will contain called user terminal sign sends to application server comprises:

The video sharing request that the IMS core net of call subscriber terminal by the caller home network will contain the called user terminal sign sends to the caller application server;

Described caller application server verifies this call subscriber terminal, if the verification passes, then the IMS core net of this video sharing request by the IMS core net of described caller home network, called home network sent to called application server;

Described called application server to the called user terminal checking, judges whether called user terminal is registered to the IMS core net of called home network according to this called user terminal sign;

And, determine by described called application server whether described called user terminal is registered in the IMS of described called home network core net.

4, method according to claim 3 is characterized in that, the described step of the IMS core net that described called user terminal is registered to called home network of notifying comprises:

Described called application server utilizes described called user terminal sign to obtain the phone unified resource sign of described called user terminal from described called home network,

Described called application server sends the short message that comprise service identification, the IMS core net of notifying this called user terminal be registered to called home network by short message service center to called user terminal according to the phone unified resource sign of described called user terminal.

5, method according to claim 4, it is characterized in that, described called application server is to utilize the inquiry from the local data base of called home network of described called user terminal sign to obtain the phone unified resource sign of called user terminal, or from the IMS core net of called home network home subscriber server or E.164 in the number entity inquiry obtain the phone unified resource sign of this called user terminal.

6, method according to claim 4 is characterized in that, if described called application server does not obtain the phone unified resource sign of called user terminal, then this method further comprises:

Described called application server is notified described caller application server by the IMS core net of called home network, the IMS core net of caller home network, and this called user terminal can't arrive;

Described caller application server is notified described call subscriber terminal by the IMS core net of described caller home network, and this called user terminal can't arrive.

7, method according to claim 4 is characterized in that, described called user terminal activation GPRS connection and the step of registering in the IMS of described called home network core net comprise:

Described called user terminal sends register requirement to GPRS network, when described called user terminal receive that described GPRS network sends finish the registration response after, determine to activate GPRS and connect;

Described called user terminal sends register requirement by GPRS network to the IMS of called home network core net according to the short message that comprises service identification that described called application server sends,

After the IMS core net of described called home network is received this register requirement, described called user terminal is registered;

After described application server determines that called user terminal is not registered to the IMS registers kernel network of called home network, the IMS core net of notifying described called user terminal to be registered to called home network, described called user terminal activate that GPRS connects and the IMS of described called home network core net register and call subscriber terminal and called user terminal carry out video shared between, this method further comprises:

The IMS core net of described called home network sends the third-party registration request to described presentity;

After described presentity is received this third-party registration request, send the called user terminal registration notification to described called application server.

8, method according to claim 1 is characterized in that, if call subscriber terminal and called user terminal belong to heterogeneous networks, described called application server is to determine according to following steps whether called user terminal is registered:

Described called application server sends the subscription status information request to presentity;

After described presentity is received this subscription status information request, provide the state information of this called user terminal of self preserving to described called application server;

Described called application server determines that according to the described state information that described presentity provides whether called user terminal is in described called ownership IMS registers kernel network.

9, method according to claim 1 is characterized in that, registers in the IMS of home network core net if described application server is determined called user terminal, and it is shared that then call subscriber terminal and called user terminal carry out video.

10, method according to claim 3 is characterized in that, call subscriber terminal and called user terminal carry out the shared step of video and comprise:

Described called application server is transmitted the video sharing request of call subscriber terminal to called user terminal;

Described called application server judges whether to receive from the shared notice of the permission video of called user terminal, if, then the IMS core net by the IMS core net of described called home network, described caller home network sends the shared notice of permission video to described caller application server, described caller application server sends the shared notice of permission video by the IMS core net of described caller home network to described call subscriber terminal, and described call subscriber terminal and described called user terminal carry out video to be shared; Otherwise, IMS core net by the IMS core net of described called home network, described caller home network sends the shared notice of refusal video to described caller application server, and described caller application server is shared to call subscriber terminal transmission refusal video by the IMS core net of described caller home network and notified.

11, a kind of system that realizes that video is shared is characterized in that this system comprises:

The IMS core net is used to transmit the message between user terminal and the application server, After call subscriber terminal and called user terminal registration, provide video sharing service;

Application server, be used for after the video sharing request that contains the called user terminal sign that receives from call subscriber terminal, if determine called user terminal in the not registration of the IMS of called home network core net, the advise called subscriber endpoint registration is to the IMS core net of called home network;

Call subscriber terminal, the video sharing request that is used for containing the called user terminal sign sends to application server;

Called user terminal is used for after receiving described video sharing request, if be not registered to the IMS core net of called home network, activate then that GPRS connects and registers in the IMS of described called home network core net.

12, system according to claim 11 is characterized in that, described application server comprises caller application server and called application server, and described IMS core net comprises the IMS core net of caller home network and the IMS core net of called home network,

The IMS core net of described caller home network is used for after the video sharing request that receives from call subscriber terminal described video sharing request being sent to the caller application server; After the called user terminal sign checking that described caller application server contains in to the video sharing request is passed through, the video sharing request is sent to the IMS core net of called home network;

Described caller application server after the called user terminal sign checking that is used for that described video sharing request is contained is passed through, sends to described video sharing request the IMS core net of caller home network;

The IMS core net of described called home network is used for described video sharing request is sent to called application server; After the called user terminal sign checking that called application server contains in to the video sharing request is passed through, described video sharing request is sent to called user terminal; Be used for register requirement, called user terminal is registered according to the called user terminal of receiving,

Described called application server, be used for after the called user terminal sign checking that described video sharing request is contained is passed through, if called user terminal in the not registration of the IMS of called home network core net, sends the notice of the IMS core net that is registered to called home network to called user terminal; After the IMS of called home network registers kernel network, send the video sharing request at definite called user terminal to called user terminal.

13, system according to claim 12 is characterized in that, described called application server comprises:

The registration judging unit is used for determining whether called user terminal is registered in the IMS of called home network core net after the called user terminal sign checking that described video sharing request is contained is passed through;

The registration notification unit, be used for when definite called user terminal is not registered, inquire about the phone unified resource sign that obtains called user terminal from the IMS core net of described called home network, send the notice of the IMS core net that is registered to called home network according to this phone unified resource sign to called user terminal;

Video sharing request unit is used at definite called user terminal after the IMS of described called home network registers kernel network, sends the video sharing request to described called user terminal.

14, system according to claim 13 is characterized in that, described application server also comprises:

Authentication unit is used for verifying that the called user terminal that described video sharing request contains identifies, and will verifies that the result sends to described registration judging unit.

15, system according to claim 13 is characterized in that, this system further comprises:

Presentity is used for preserving the state information of described called user terminal in the IMS of called home network core net;

Described registration judging unit according to the state information of preserving in the described presentity, determines whether described called user terminal is registered in the IMS of called home network core net.

16, system according to claim 13 is characterized in that, this system further comprises: short message service center,

Described registration notification unit is used for when described registration judging unit determines that called user terminal is not registered, and the short message that will contain service identification according to phone unified resource sign sends to short message service center;

Described short message service center is used for sending this short message to called user terminal after receiving described short message;

Described called user terminal is used for after receiving described short message, and activation GPRS connects and registers in the IMS of described called home network core net.

17, system according to claim 13 is characterized in that, the IMS core net of described called home network further comprises:

Data storage cell is used to preserve the corresponding relation of user terminal identification and phone unified resource sign,

The IMS core net of described called home network comprises:

Query unit is used for utilizing the phone unified resource sign that obtains the corresponding called user terminal of called user terminal sign from described corresponding relation;

Described data storage cell is the local data base of called home network, or is the home subscriber server or the number entity E.164 of the IMS core net of called home network.

18, system according to claim 13 is characterized in that, the IMS core net of described called home network further comprises:

The SDT state of termination unit is used for after receiving the register requirement of called user terminal, sends the third-party registration request to described presentity;

Described presentity is further used for after receiving described third-party registration request, sends the called user terminal registration notification to described called application server;

Described registration judging unit according to the described registration notification that presentity sends, determines that called user terminal is in the IMS of called home network registers kernel network.

19, a kind of application server is characterized in that, comprising:

The registration judging unit is used for determining whether called user terminal is registered in the IMS of called home network core net after the called user terminal sign checking that described video sharing request is contained is passed through;

The registration notification unit, be used for when definite called user terminal is not registered, inquire about the phone unified resource sign that obtains called user terminal from the IMS core net of described called home network, send the notice of the IMS core net that is registered to called home network according to this phone unified resource

sign to called user terminal;

Video sharing request unit is used at definite called user terminal after the IMS of described called home network registers kernel network, sends the video sharing request to described called user terminal.

20. application server according to claim 19 is characterized in that, described application server also comprises:

Authentification unit is used for verifying that the called user terminal that described video sharing request contains identifies, and will verifies that the result sends to described registration judging unit.

Description

A kind of method, system and device of realizing video sharing service

Technical field

The present invention relates to communication technical field, in particular, is a kind of method, system and device of realizing video sharing service.

Background technology

Development along with mobile communication technology, people no longer are satisfied with single voice communication mode, and multimedia communication mode that need be brand-new, this multimedia communication is not only simple video and audio communication, also comprise instant message, collaborative work, Streaming Media or the like business, particularly the business of new traffic mode and traditional voice fusion.Trend based on the Internet and communication network fusion, each standardization body has proposed the notion of next generation network, third generation partner plans (Third Generation Partnership Project, full Internet protocol (the Internet Protocol that 3GPP) on the packet carrying network basis, introduces, IP) IP Multimedia System of business network framework (IP Multimedia Subsystem, IMS) core net, target is according to personalized user data, the shielding user mode access, the degree of opening of control professional ability provides multimedia communication experiences.Video sharing service is meant that a user terminal is shared with video information and other one or more user terminals of this locality.Wherein, the shared video information of user terminal comprises video, local video file, picture, music and the animation etc. that camera is taken.

The signaling of video sharing service is controlled dialogue-based initiation protocol, and (Session Initiation Protocol, SIP), call subscriber terminal and called user terminal need be registered in the IMS core net before video shares carrying out.Video is shared and can be carried out between broadband mobile network network and non-broadband mobile network network, also can carry out between non-broadband mobile network network.The broadband mobile network network comprises: third generation partner plans the mobile network after version 5 (3GPPR5) and the 3GPPR5, and all callings all are to carry by IP in 3GPPR5 and mobile network afterwards thereof.Non-broadband mobile network network comprises: 2.5 third-generation mobile communication systems (2.5G), third generation partner plan version 99 (3GPPR99), third generation partner plans edition 4 (3GPPR4), basic call is by circuit switching (Circuit Switch in non-broadband mobile network network, CS) territory carrying, data service is by GPRS (General Packet Radio Service, GPRS) carrying.

Fig. 1 is as the user terminal of the broadband mobile network network of caller and the method that realizes video sharing service as the user terminal in the called non-broadband mobile network network in the prior art.Wherein, call subscriber terminal communicates by caller IMS core net and caller application server, the caller application server communicates by caller IMS core net, called IMS core net and called application server, called application server communicates by called IMS core net and called user terminal, below for convenience of description, only use call subscriber terminal, caller application server, called application server, called user terminal that the implementation of this method is described.

Consult shown in Figure 1ly, realize in the prior art that video sharing service may further comprise the steps:

Step 101 ~ 106, call subscriber terminal and called user terminal carry out media negotiation based on Session Initiation Protocol.

Specifically comprise: call subscriber terminal by the caller application server (Application Server, AS), called application server, send video to called user terminal and share and invite; Called user terminal sends the result of media negotiation by called application server, caller application server, to call subscriber terminal.

Step 107 ~ 130, call subscriber terminal and called user terminal are set up provisional communication.

Specifically comprise: call subscriber terminal sends Temporary Response by caller application server, called application server to called user terminal and confirms (PRACK); Called user terminal sends acknowledge message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends to called user terminal by caller application server, called application server and upgrades (UPDATE) message; Called user terminal sends ALERTING message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends Temporary Response by caller application server, called application server to called user terminal and confirms (PRACK) message; Called user terminal sends acknowledge message by called application server, caller application server to call subscriber terminal; Called user terminal sends video sharing request acknowledge message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends response confirmation message by caller application server, called application server to called user terminal.

Step 131 ~ 134, call subscriber terminal and called user terminal are set up RTP, and (Real-timeTransport Protocol, RTP) link carry out video and share.

Specifically comprise: call subscriber terminal and called user terminal are set up the RTP link; Called user terminal sends Receiver Report to call subscriber terminal; Call subscriber terminal sends Sender Report to called user terminal; Call subscriber terminal and called user terminal carry out video by the RTP link to be shared.

Step 135 ~ 141, called user terminal stop sharing, and call subscriber terminal and called user terminal discharge communication link, and video is shared and finished.

Specifically comprise: called user terminal sends to call subscriber terminal and discharges the RTP chain circuit message; Called user terminal sends release message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends to called user terminal by caller application server, called application server and discharges acknowledge message.

In the prior art shown in Figure 1, needing to activate GPRS after the user terminal start in non-broadband mobile network network connects, and be registered in the IMS core net, automatically be registered in the IMS core net during start of user terminal in the broadband mobile network network, the user terminal in any one network before being registered to the IMS core net can not with the user terminal shared video information in other networks.After registration was finished, both sides at first connected and media negotiation by Session Initiation Protocol, carry out the transmission of shared medium then according to the result of media negotiation.

When called user terminal is in the non-broadband mobile network network, because connecting, the GPRS of called user terminal is in unactivated state usually, so cause the control signaling of call subscriber terminal in the broadband mobile network network can't be properly routed to called user terminal.If for guaranteeing the correct route of control signaling, require the user terminal of non-broadband mobile network network to be in GPRS activation and IMS login state all the time, not only

can take the resource of packet domain in a large number; and the state of activation that keeps GPRS can increase the energy consumption of user terminal, can shorten the stand-by time of user terminal usually.

Fig. 2 is for realizing the method for video sharing service between caller in the prior art and the called user terminal that is non-broadband mobile network network.Wherein, call subscriber terminal communicates by caller IMS core net and caller application server, the caller application server communicates by caller IMS core net, called IMS core net and called application server, called application server communicates by called IMS core net and called user terminal, below for convenience of description, only use call subscriber terminal, caller application server, called application server, called user terminal that the implementation of this method is described.Consult shown in Figure 2ly, this method may further comprise the steps:

Step 201, call subscriber terminal and called user terminal are set up voice call;

Step 202 ~ 213, call subscriber terminal and called user terminal are inquired about the other side mutually and whether are possessed the shared ability of video.

Specifically comprise: call subscriber terminal sends query messages by caller application server, called application server to called user terminal; Called user terminal sends acknowledgment of your inquiry message by called application server, caller application server to call subscriber terminal; Called user terminal sends query messages by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends acknowledgment of your inquiry message 200 by caller application server, called application server to called user terminal.

Step 214 ~ 219, call subscriber terminal and called user terminal carry out media negotiation based on Session Initiation Protocol.

Specifically comprise: call subscriber terminal sends the video sharing request by caller application server, called application server to called user terminal; Called user terminal sends the result of media negotiation to call subscriber terminal by called application server, caller application server;

Step 220 ~ 246, call subscriber terminal and called user terminal are set up provisional communication.

Specifically comprise: call subscriber terminal sends PRACK message by caller application server, called application server to called user terminal; Called user terminal sends acknowledge message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends UPDATE message by caller application server, called application server to called user terminal; Called user terminal sends ALERTING message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends PRACK message by caller application server, called application server to called user terminal, Called user terminal sends acknowledge message by called application server, caller application server to call subscriber terminal; Called user terminal sends video sharing request acknowledge message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends response confirmation message by caller application server, called application server to called user terminal.

Step 247 ~ 250, call subscriber terminal and called user terminal are set up the RTP link, carry out video and share.

Specifically comprise: call subscriber terminal and called user terminal are set up the RTP link; Called user terminal sends Receiver Report to call subscriber terminal; Call subscriber terminal sends Sender Report to called user terminal; Call subscriber terminal and called user terminal carry out video by the RTP link to be shared;

Step 251 ~ 257, called user terminal stop sharing, and user terminal 1 and user terminal 2 discharge communication link, and video is shared and finished.

Specifically comprise: called user terminal sends to call subscriber terminal and discharges the RTP chain circuit message, Called user terminal sends release message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends to called user terminal by caller application server, called application server and discharges acknowledge message.

Step 258, call subscriber terminal and called user terminal return to the voice call state of circuit commutative field.

In the prior art shown in Figure 2, call subscriber terminal and called user terminal are at first set up voice call by circuit commutative field, after voice call is set up, call subscriber terminal and called user terminal activate GPRS automatically and connect, and be registered to the IMS core net, can realize between call subscriber terminal and the called user terminal that after this video is shared.

Because not needing to remain GPRS, called user terminal do not activate and the IMS login state, take a large amount of packet domain problem of resource so solved user terminal energy consumption and user terminal, but still there are some shortcomings: first, video is shared the audio call that must at first carry out circuit commutative field, to using video sharing service to cause to a certain degree restriction, the user may abandon sharing because of the cost of audio call; The second, in fact most of user's voice is called out and is just called, and might not need to carry out video and share, and connects and activate packet domain during each audio call, and is registered in the IMS core net, can cause the waste of GPRS resource; The 3rd, no matter whether call subscriber terminal and called user terminal are registered to the IMS core net, if do not set up voice intercommunication between user terminal, just can't carry out video and share.

Summary of the invention

The invention provides a kind of method, system and device of realizing video sharing service, do not set up voice intercommunication between the prior art user terminal, just can't carry out the problem that video is shared if be used for solving.

A kind of method that realizes video sharing service that the embodiment of the invention provides, this method may further comprise the steps:

The video sharing request that call subscriber terminal will contain the called user terminal sign sends to application server,

Described application server determines that whether called user terminal is in the IMS of called home network registers kernel network, if not registration, the IMS core net of then notifying described called user terminal to be registered to called home network, described called user terminal activate the GPRS connection and register in the IMS of described called home network core net;

Call subscriber terminal and called user terminal carry out video to be shared.

A kind of system that realizes that video is shared that the embodiment of the invention provides comprises:

The IMS core net is used to transmit the message between user terminal and the application server; After call subscriber terminal and called user terminal registration, provide video sharing service;

Application server, be used for after the video sharing request that contains the called user terminal sign that receives from call subscriber terminal, if determine called user terminal in the net registration of the IMS of called home network core net, the advise called subscriber endpoint registration is to the IMS core net of called home network;

Call subscriber terminal, the video sharing request that is used for containing the called user terminal sign sends to application server,

Called user terminal is used for after receiving described video sharing request, if be not registered to the IMS core net of called home network, activate then that GPRS connects and registers in the IMS of described called home network core net.

A kind of application server that the embodiment of the invention provides comprises:

The registration judging unit is used for determining whether called user terminal is registered in the IMS of called home network core net after the called user terminal sign checking that described video sharing request is contained is passed through;

The registration notification unit, be used for when definite called user terminal is not registered, inquire about the phone unified resource sign that obtains called user terminal from the IMS core net of described called home network, send the notice of the IMS core net that is registered to called home network according to this phone unified resource sign to called user terminal;

Video sharing request unit is used at definite called user terminal after the IMS of described called home network registers kernel network, sends the video sharing request to described called user terminal.

The method, system and device of the application of the invention embodiment, can carry out independently video between user terminal shares, the force users terminal must not carried out audio call when realizing video sharing service between user terminal, is convenient to realize between the user terminal video sharing service, Called user terminal activates GPRS and is registered to the IMS core net after receiving the registration notification of called application server, has reduced the rate that wastes of GPRS network resource.Need carry out video when sharing when call subscriber terminal in embodiments of the present invention, the video sharing request that will be contained the called user terminal sign by call subscriber terminal sends to application server, after described application server determines that called user terminal is not registered to the IMS registers kernel network of called home network, the IMS core net of notifying described called user terminal to be registered to called home network, described called user terminal activates the GPRS connection and registers in the IMS of described called home network core net, realizes video sharing service in called user terminal registration back with call subscriber terminal.

Description of drawings

Fig. 1 is as the user terminal of the broadband mobile network network of caller and the signaling process schematic diagram of realizing video sharing service as the user terminal of called non-broadband mobile network network in the prior art;

Fig. 2 is for realizing the signaling process schematic diagram of video sharing service between caller in the prior art and the called user terminal that is non-broadband mobile network network;

Fig. 3 is a primary structure schematic diagram of realizing the system of video sharing service in the embodiment of the invention;

Fig. 4 is the primary structure schematic diagram of the specific embodiment one of the system of realization video sharing service in the embodiment of the invention;

Fig. 5 is the primary structure schematic diagram of the specific embodiment two of the system of realization video sharing service in the embodiment of the invention;

Fig. 6 is the primary structure schematic diagram of the specific embodiment three of the system of realization video sharing service in the embodiment of the invention;

Fig. 7 is the primary structure schematic diagram of application server in the embodiment of the invention;

Fig. 8 is for realizing realizing in the embodiment of the invention the main signaling process schematic diagram of the method for video sharing service;

Fig. 9 is a main schematic flow sheet of realizing the method for video sharing service in the embodiment of the invention.

Embodiment

In an embodiment of the present invention in order to realize the video sharing service between the user terminal, by the application server advise called subscriber endpoint registration in the mobile network to the IMS core net, for example the mode that sends SMS message to called user terminal realizes video sharing service with call subscriber terminal after called user terminal is registered to the IMS core net.

Below in conjunction with accompanying drawing the specific embodiment of the present invention is described.

Referring to shown in Figure 3, the system of the realization video sharing service that the embodiment of the invention provides mainly comprises: call subscriber terminal 31, IMS core net 32, application server 33, called user terminal 34.

Wherein, connect the IMS core net 32 of a plurality of user terminals, be used to transmit the message between user terminal and the application server 33; After call subscriber terminal 31 and called user terminal 34 registrations, provide video sharing service.

Application server 33, be arranged in the application system, be used for after the video sharing request that contains the called user terminal sign that receives from call subscriber terminal 31, if determine called user terminal 34 in the not registration of the IMS of called home network core net, advise called subscriber terminal 34 is registered to the IMS core net of called home network;

Call subscriber terminal 31, the video sharing request that is used for containing the called user terminal sign sends to application server 33;

Called user terminal 34 is used for after receiving described video sharing request, if be not registered to the IMS core net of called home network, activate then that GPRS connects and registers in the IMS of described called home network core net.

Referring to shown in Figure 4, when call subscriber terminal and called user terminal belong to heterogeneous networks, described application server comprises caller application server and called application server, and the IMS core net comprises the IMS core net of caller home network and the IMS core net of called home network.The IMS core net of described caller home network sends to the caller application server with described video sharing request after the video sharing request that contains the called user terminal sign that receives from call subscriber terminal.After described caller application server passes through described call subscriber terminal checking, described video sharing request is sent to the IMS core net of described caller home network, and the IMS core net of described caller home network sends to described video sharing request the IMS core net of described called home network.The IMS core net of described called home network sends to called application server with described video sharing request.

Described application server determines that whether called user terminal is in the IMS of called home network registers kernel network, if not registration, the IMS core net of then notifying described called user terminal to be registered to called home network, described called user terminal activate the GPRS connection and register in the IMS of described called home network core net.After called application server determined that called user terminal is registered to the IMS core net of described called home network, described called application server was transmitted the video sharing request of call subscriber terminal to called user terminal.Described called application server judges whether to receive from the shared notice of the permission video of called user terminal, if, then the IMS core net by the IMS core net of

described called home network, described caller home network sends the shared notice of permission video to described caller application server, described caller application server sends the shared notice of permission video by the IMS core net of described caller home network to described call subscriber terminal, and described call subscriber terminal and described called user terminal carry out video to be shared; Otherwise, IMS core net by the IMS core net of described called home network, described caller home network sends the shared notice of refusal video to described caller application server, and described caller application server is shared to call subscriber terminal transmission refusal video by the IMS core net of described caller home network and notified.

Described called application server comprises: registration judging unit 41, registration notification unit 42, video sharing request unit 43.

Wherein, described registration judging unit 41 is used for determining whether called user terminal is registered in the IMS of called home network core net after the called user terminal sign checking that described video sharing request is contained is passed through; Registration notification unit 42, be used for when described registration judging unit 41 determines that called user terminal is not registered, the called user terminal that contains according to described video sharing request identifies, inquire about the phone unified resource sign that obtains called user terminal from the IMS core net of described called home network, send the notice of the IMS core net that is registered to called home network according to this phone unified resource sign to called user terminal; Described video sharing request unit 43 is used for determining that at described registration judging unit 41 called user terminal after the IMS of called home network registers kernel network, sends the video sharing request to called user terminal.

In addition, described called application server also comprises: authentication unit 44 is used for verifying that the called user terminal that described video sharing request contains identifies, and will verifies that the result sends to described registration judging unit 41.

Referring to shown in Figure 5, the IMS core net of described called home network comprises: data storage cell 51, query unit 52, SOT state of termination unit 53.Wherein, described data storage cell 51 is used to preserve the corresponding relation of user terminal and phone unified resource sign; Described query unit 52 is used for utilizing the described corresponding relation of preserving from described data storage cell 51 to obtain the phone unified resource sign that called user terminal identifies corresponding called user terminal; SOT state of termination unit 53 is used for after receiving the register requirement of called user terminal, sends the third-party registration request to described presentity.Described registration notification unit 42 can will be inquired about notice according to the called user terminal sign that contains in the described video sharing request and send to query unit 52.Described query unit 52 obtains the phone unified resource sign of the corresponding called user terminal of called user terminal sign from data cell memory cell 51.

Certainly, this system can further include: presentity, be used to preserve the presence information of described called user terminal in the IMS of called home network core net, like this, described registration judging unit 41, can determine whether called user terminal is registered in the IMS of called home network core net according to the information of presence described in the presentity.

When described registration judging unit 41 was determined called user terminal in the IMS of called home network registers kernel network according to described state information, described video sharing request unit 43 sent the video sharing request to called user terminal.When described registration judging unit 41 is determined called user terminal when the IMS of called home network core net is not registered according to described state information, described registration notification unit 42 utilizes the called user terminal sign that contains in the described video sharing request to obtain the phone unified resource sign of called user terminal from the IMS core net of called home network.When described registration notification unit 42 not when the IMS core net of described called home network obtains the phone unified resource sign of called user terminal, described registration notification unit 42 is by the IMS core net of called home network, the IMS core net notice caller application server of caller home network, and called user terminal can't arrive; The caller application server is by the IMS core net subscriber call terminal of caller home network, and called user terminal can't arrive.

In addition, this system can further include: short message service center, described registration notification unit 42, be used for when described registration judging unit 41 determines that called user terminal is not registered to the IMS core net of called home network, according to the called user terminal phone unified resource sign that the IMS core net from called home network obtains, the short message that will comprise service identification sends to short message service center as triggering signaling.Described short message service center is used for sending this short message to called user terminal after receiving described short message, and the advise called subscriber endpoint registration is to the IMS core net of called home network.

Described called user terminal is used for after receiving described short message, registers according to the service identification activation GPRS connection that comprises in the described short message and in the IMS of called home network core net.Described SOT state of termination unit 53 after receiving the register requirement of called user terminal, sends the third-party registration request to described presentity.After the success of the IMS of described called home network registers kernel network, the called user terminal registration notification is sent to described presentity, described presentity sends to described called application server with the called user terminal state information, like this, when described registration judging unit 41 was determined described called user terminal in the IMS of described called home network registers kernel network according to described state information, described video sharing request unit 43 sent described video sharing request to described called user terminal.

Referring to shown in Figure 6, the presentity in the embodiment of the invention comprises: endpoint registration unit 61.Wherein, endpoint registration unit 61 is used to write down the state information of called user terminal in the IMS core net.Like this, described registration judging unit 41 can determine whether called user terminal is registered in the IMS of called home network core net according to called user terminal in the endpoint registration unit 61 in the state information of IMS core net.

Referring to shown in Figure 7, the application server that the embodiment of the invention provides mainly comprises: registration judging unit 71, registration notification unit 72, video sharing request unit 73.

Wherein, described registration judging unit 71 is used for determining whether called user terminal is registered in the IMS of called home network core net after the called user terminal sign checking that the video sharing request is contained is passed through;

Described registration notification unit 72, be used for when definite called user terminal is not registered, inquire about the phone unified resource sign that obtains called user terminal from the IMS core net of described called home network, send the notice of the IMS core net that is registered to called home network according to this phone unified resource sign to called user terminal;

Described video sharing request unit 73 is used at definite called user terminal after the IMS of described called home network registers kernel network, sends the video sharing request to described called user terminal;

Described application server also comprises: authentication unit 74 is used for verifying that the called user terminal that described video sharing request contains identifies, and will verifies that the result sends to described registration judging unit 71.

Referring to shown in Figure 8, realize that the signaling process of the realization video sharing service that the embodiment of the invention provides comprises:

Step 801 ~ 802, call subscriber terminal send the video sharing request by the caller application server to called application server.

The presence of step 803 ~ 806, called application server inquiry called user terminal.

Specifically comprise: called application server sends the subscription status information request to presentity; Presentity sends the request acknowledge message to called application server; Presentity is to called application server send state information; Called application server sends confirmation of receipt message to presentity; Called application server judges whether called user terminal is registered to the IMS core net, if then execution in step 818, otherwise execution in step 807;

The phone unified resource sign of step 807, called application server inquiry called user terminal.

Specifically comprise: called application server is according to the SIP URI of called user terminal, local or to home subscriber server (HSS), E.164 number entity (ENUM) entity of etc ing is inquired about called subscriber's phone unified resource identification message;

Step 808 ~ 813, called application server send SMS message to called user terminal by short message service center.

Specifically comprise: called application server sends SMS message by short message service center; Short message service center sends acknowledge message to called application server; Short message service center sends SMS message to called user terminal; Called user terminal sends acknowledge message to short message service center; Called application server sends Temporary Response message by the caller application server to call subscriber terminal;

Step 814 ~ 817, IMS core net third-party registration.

Specifically comprise: after called user terminal is received short message, send the third-party registration request to called ownership IMS core net; After the IMS core net is received this register requirement, the third-party registration request is sent to presentity; Presentity sends registration confirmation message to the IMS core net; Presentity sends the called user terminal registration notification to called application server; Called application server sends called user terminal registration notification response message by presentity to called user terminal.

Step 818, called application server are transmitted video to called user terminal and are shared notice.

Step 819 ~ 848, call subscriber terminal and called user terminal are set up provisional communication.

Specifically comprise: called user terminal sends acknowledge message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends to called user terminal by caller application server, called application server and upgrades (UPDATE) message; Called user terminal sends ALERTING message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends PRACK message by caller application server, called application server to called user terminal; Called user terminal sends acknowledge message by called application server, caller application server to call subscriber terminal; Called user terminal sends video sharing request acknowledge message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends response confirmation message by caller application server, called application server to called user terminal;

Step 849 ~ 852, call subscriber terminal and called user terminal are set up the RTP link, carry out video and share.

Specifically comprise: call subscriber terminal and called user terminal are set up the RTP link; Called user terminal sends Receiver Report to call subscriber terminal; Call subscriber terminal sends Sender Report to called user terminal; Call subscriber terminal and called user terminal carry out video by the RTP link to be shared;

Step 853 ~ 859, called user terminal stop sharing, and call subscriber terminal and called user terminal discharge communication link, and video is shared and finished.

Specifically comprise: called user terminal sends to call subscriber terminal and discharges the RTP chain circuit message; Called user terminal sends release message by called application server, caller application server to call subscriber terminal; Call subscriber terminal sends to called user terminal by caller application server, called application server and discharges acknowledge message;

Step 860 ~ 863, presentity and IMS core net cancel register.

Specifically comprise: called application server sends the state information request that cancels subscriptions to presentity; Presentity sends the acknowledge message that cancels subscriptions to called application server, The IMS core net sends the cancel register request to presentity, Presentity sends the cancel register acknowledge message to the IMS core net.

Referring to shown in Figure 9, realize that the method for the realization video sharing service that the embodiment of the invention provides comprises the steps:

Step 901, call subscriber terminal send the video sharing request by the caller application server to called application server, after called application server is received, send the subscription status information request to presentity.

After step 902, presentity are received subscription status information request from called application server, to called application server send state information.

Step 903, called application server judge according to the state information that presentity sends whether called user terminal is registered to the IMS core net, if then execution in step 911, otherwise, execution in step 904.

Step 904, called application server are inquired about the telephone number of called user terminal in called home network.

Step 905, called application server judge whether to inquire the telephone number of called user terminal, if, execution in step 906, otherwise, execution in step 907.

Step 906, called application server directly or notify other functional entitys to send SMS message to called user terminal according to telephone number by short message service center, execution in step 908.

Step 907, called application server send called user terminal by the caller application server to call subscriber terminal and can't respond notice, execution in step 914.

Step 908, called user terminal are registered to the IMS core net after receiving short message from short message service center.

Step 909, IMS core net are initiated third-party registration to presentity, after the success of IMS registers kernel network, send the called user terminal registration notification to presentity.

After step 910, presentity receive called user terminal registration notification from the IMS core net, send the called user terminal registration notification to called application server.

Step 911, called application server are transmitted call subscriber terminal video sharing request to called user terminal.

Step 912, called application server judge whether to receive from the shared notice of the permission video of called user terminal, if, execution in step 915, otherwise, execution in step 913.

Step 913, called application server send the refusal video by the caller application server to call subscriber terminal and share notice.

Step 914, call subscriber terminal receive after called user terminal that the caller application server sends can't respond notice, cancellation video sharing request.

Step 915, call subscriber terminal and called user terminal carry out video to be shared.

Step 916, call subscriber terminal and called user terminal finish video share after, the called application server notice presentity called user terminal state information that cancels subscriptions, called user terminal notice IMS core net cancel register, process ends.

Call subscriber terminal by the caller application server after called application server sends the video sharing request, called application server need judge whether called user terminal is registered to the IMS core net, and the presentity of called application server in called home network sends the called user terminal state information request of subscribing to.Because presentity is used for writing down the login state of called user terminal in the IMS core net, after receiving the request that called application server sends, presentity sends the notice of the state information that comprises called user terminal to called application server.

Called application server is after the called user terminal state information that receives from presentity, judge whether called user terminal is registered to the IMS core net, if called application server judges that called user terminal is registered to the IMS core net, then the video sharing request is transmitted to called user terminal.After called user terminal is received, carry out media negotiation and resource reservation, carry out video by the RTP link of setting up between call subscriber terminal and the called user terminal and share with call subscriber terminal.If called application server judges that called user terminal is not registered to the IMS core net, then called application server is at the local data base of called home network, the phone unified resource sign of inquiry called user terminal in HSS or the ENUM entity, if called application server is judged the phone unified resource sign that inquires called user terminal, then from phone unified resource sign, parse the telephone number of called user terminal, called application server can directly or notify other functional entitys in caller home network and the called home network to send SMS message to called user terminal by short message service center, and called user terminal receives that the short message post-registration is to the IMS core net.If called application server is judged the phone unified resource sign that does not inquire called user terminal, then reply the response that called user terminal can't arrive, after call subscriber terminal is received, cancellation video sharing request.

After called user terminal is registered to the IMS core net, the IMS core net sends the third-party registration request to presentity, presentity is received the third-party registration request, the called user terminal notice of reaching the standard grade is sent to called application server, or directly sends the notice of reaching the standard grade to called application server by called user terminal.After called application server is received the registration notification of presentity or called user terminal transmission, transmit the video sharing request of call subscriber terminal to called user terminal, after called user terminal is received, carry out media negotiation and resource reservation with call subscriber terminal, carry out video by the RTP link of setting up between call subscriber terminal and the called user terminal and share.

Call subscriber terminal and called user terminal finish video share after, the called application server notice presentity called user terminal state information that cancels subscriptions, called user terminal notice IMS core net cancel register.

When not having presentity among the mobile network, application server does not need to obtain from presentity the state information of called user terminal.When call subscriber terminal by caller application server and called application server after called user terminal sends the video sharing request, called application server is according to the called user terminal offline responses from the IMS core net, judge whether called user terminal is registered to the IMS core net, if called user terminal has been registered to the IMS core net, it is shared that then call subscriber terminal and called user terminal carry out video, if called user terminal is not registered to the IMS core net, then application server directly or other functional entitys in the reporting system send SMS message to called user terminal by short message service center, after called user terminal receives short message, be registered to the IMS core net, realize video sharing service with call subscriber terminal after called user terminal succeeds in registration.

The method, system and device of the application of the invention embodiment when realizing video sharing service between user terminal, needn't at first be set up the audio call of circuit commutative field, help the realization of video sharing service between the user terminal; Needn't set up audio call between the user terminal at every turn and be registered to the IMS core net, save the GPRS resource; No matter whether user terminal is registered to the IMS core net, only need by the IMS core net of application server advise called subscriber endpoint registration to called home network, be registered to the IMS core net of described called home network at called user terminal after, realize video sharing service between the user terminal, and do not need to realize video sharing service by the audio call of between user terminal, setting up circuit commutative field.

Obviously, those skilled in the art can carry out various changes and modification to the present invention and not break away from the spirit and scope of the present invention.Like this, if of the present invention these are revised and modification belongs within the scope of claim of the present invention and equivalent technologies thereof, then the present invention also is intended to comprise these changes and modification interior.

Patent Citations (20)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
US6934756B2 *	2000-11-01	2005-08-23	International Business Machines Corporation	Conversational networking via transport, coding and control conversational protocols
SE0004178D0 *	2000-11-14	2000-11-14	Ericsson Telefon Ab L M	Network requested packet data protocol context activation
US20040103157A1 *	2002-04-17	2004-05-27	Nokia Corporation	Store-and-forward server and method for storing and forwarding for instant messaging service implemented in IP multimedia core network subsystem (IMS)
AT508698T *	2003-08-07	2011-05-15	Pervenio Ltd	SERVER FOR DETERMINING AND SAVING MOBILE DEVICE PERFORMANCE FEATURES
US20050060411A1 *	2003-09-16	2005-03-17	Stephane Coulombe	System and method for adaptation of peer-to-peer multimedia sessions
US20050198304A1 *	2004-01-15	2005-09-08	Ian Oliver	System and method for access point translation of web service content
US20050198193A1 *	2004-02-12	2005-09-08	Jaakko Halme	System, method, and apparatus for creating metadata enhanced media files from broadcast media

PL1571864T3 *	2004-03-05	2011-02-28	T Mobile Deutschland Gmbh	Method for registration of a communication terminal with an IMS services network
CN100372389C *	2004-05-18	2008-02-27	华为技术有限公司	Network initiated data service processing method
US7529354B2 *	2004-08-10	2009-05-05	Nokia Corporation	Method of managing a connection release, corresponding system and device
CN1303793C *	2004-09-21	2007-03-07	华为技术有限公司	Method for realizing application server communication
EP1672866A1 *	2004-12-15	2006-06-21	Siemens S.p.A	Method and system to the instant transfer of multimedia files between mobile radio users within the scope of combinational services
US20060149811A1 *	2004-12-31	2006-07-06	Sony Ericsson Mobile Communications Ab	Method for remotely controlling media devices via a communication network
US7856502B2 *	2005-02-23	2010-01-04	Nokia Siemens Networks Oy	System, method, and network elements for providing a service such as an advice of charge supplementary service in a communication network
AT429767T *	2005-05-25	2009-05-15	Ericsson Telefon Ab L M	METHOD AND DEVICE FOR IDENTIFYING AN IMS SERVICE
DE102005033667B4 *	2005-07-19	2007-05-24	Infineon Technologies Ag	Communication session server unit, communication terminal, broadcast server unit, network unit, method for controlling a communication session with a plurality of communication terminals, method for establishing a communication session, method for transmitting data in the context of a communication session by means of a broadcast server Unity and computer program elements
BRPI0520429B1 *	2005-07-19	2019-03-19	Telefonaktiebolaget Lm Ericsson (Publ)	ALLOCATION METHOD OF ALLOCATING A LOGIN PROTOCOL SERVER TO A SUBSCRIBER WITHIN AN IP MULTIMEDIA SUBSYSTEM
CN100388680C *	2005-08-30	2008-05-14	华为技术有限公司	Method of implementing IMS registration triggering in IP multimedia subsystem
ES2402779T3 *	2005-09-02	2013-05-08	Swisscom Ag	Procedure and system to provide media content to a user
US20080046578A1 *	2006-08-16	2008-02-21	Van Der Gaast Tjietse	Controlled access to a video recording over an IP multimedia subsystem, IMS, telecommunications network

* Cited by examiner, † Cited by third party

Cited By (11)

Publication number	Priority date	Publication date	Assignee	Title
WO2010060359A1 *	2008-11-28	2010-06-03	华为终端有限公司	Method, terminal device and communication system for processing rich media communication service
CN101489309B *	2008-01-18	2011-03-30	希姆通信息技术（上海）有限公司	Method and double mode double standby terminal for implementing video sharing service
CN101631338B *	2009-07-28	2013-01-09	青岛海信移动通信技术股份有限公司	Multi-party video sharing method and system based on wireless network
Family To Family Citations				
CN101453474B *	2008-12-30	2011-12-07	中兴通讯股份有限公司	Terminal, information inserting system and method
CN101447846A *	2008-12-31	2009-06-03	中兴通讯股份有限公司	System for supporting mobile TV program sharing and method therefor
JP4775451B2 *	2009-02-04	2011-09-21	ブラザー工業株式会社	Telephone server and computer program
EP3005719B1	2013-06-05	2020-03-11	Snakt, Inc.	Methods and systems for creating, combining, and sharing time-constrained videos
CN104426893B *	2013-09-09	2017-11-21	中国移动通信集团公司	Wake up the method, apparatus and system of mobile terminal
US9648053B2 *	2014-05-12	2017-05-09	Verizon Patent And Licensing Inc.	On-demand registration for internet protocol multimedia subsystem (IMS) services
US11394756B2 *	2014-09-30	2022-07-19	Apple Inc.	Systems and methods for improved transitions continuity between wireless protocols
US11206553B1	2020-07-13	2021-12-21	T-Mobile Usa, Inc.	Device authentication in a wireless telecommunications network

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title

CN1976346A	2007-06-06	Method system and apparatus for realizing video frequency cosharing Business
CN1282390C	2006-10-25	Method and system for handling a network-identified emergency session
CN1202681C	2005-05-18	Method and system for establishing a connection between network elements
CN1270490C	2006-08-16	Method and system providing messaging service
CN101043647A	2007-09-26	Method, system and apparatus for realizing multimedia color bell and multimedia color image service
CN101031135A	2007-09-05	Emergent calling method and system
CN1689307A	2005-10-26	A communication manager for providing multimedia in a group communication network
CN1886999A	2006-12-27	Method and communication system for automatically discovering the multimedia service capability
CN1622647A	2005-06-01	System for transmitting multicast information
CN1922912A	2007-02-28	Method for the control and evaluation of a message traffic of a communication unit by means of a first network unit within a mobile radio system, pertaining communication unit and first network unit
CN101069395A	2007-11-07	Method for SMM capability distribution
CN101043396A	2007-09-26	Method for establishing subscribe communication and method for subscribing user events
CN1859648A	2006-11-08	Method and system for realizing work group
CN1866930A	2006-11-22	System and method for realizing customized ring back tone based on IP multimedia subsystem
CN1719939A	2006-01-11	Method for implementing mobile positioning service
CN1870683A	2006-11-29	Method for implementing legal monitoring
CN101068238A	2007-11-07	Method and system for messaging between public exchange telephone network terminal and immediate communication terminal
CN1889439A	2007-01-03	Method and system for storing session information in instant information business
CN1878414A	2006-12-13	Communication method and radio communication terminal
CN101079892A	2007-11-28	Processing method, system and device for subscription and registration status
CN101068385A	2007-11-07	Device and method for establishing a communication session
CN101039268A	2007-09-19	Method for restricting user equipment access and MGC and CSCF
CN1682557A	2005-10-12	Communication channel selection
CN1852585A	2006-10-25	Mobile communication control method and mobile communication system
CN101047661A	2007-10-03	System, device and method for filtering session initial protocol message

Priority And Related Applications

Priority Applications (5)

Application	Priority date	Filing date	Title
CNB200610164077A	2006-12-01	2006-12-01	Method system and apparatus for realizing video frequency cosharing Business
CN200780000608.2A	2006-12-01	2007-11-30	Method, system and apparatus for implementing video sharing service
EP07845753A	2006-12-01	2007-11-30	A method, system and apparatus for implementing video sharing service
PCT/CN2007/003390	2006-12-01	2007-11-30	A method, system and apparatus for implementing video sharing service
US12/140,625	2006-12-01	2008-06-17	Method, system and apparatus for video sharing

Applications Claiming Priority (1)

Application	Filing date	Title
CNB200610164077A	2006-12-01	Method system and apparatus for realizing video frequency cosharing Business

Legal Events

Date	Code	Title	Description
2007-06-06	C06	Publication	
2007-06-06	PB01	Publication	
2007-08-01	C10	Entry into substantive examination	
2007-08-01	SE01	Entry into force of request for substantive examination	
2008-12-24	C14	Grant of patent or utility model	
2008-12-24	GR01	Patent grant	
2020-12-11	TR01	Transfer of patent right	**Effective date of registration**: 20201201 **Address after**: Building 2, No. 3, Fuqian Road, Hailing District, Taizhou City, Jiangsu Province **Patentee after**: Taizhou Haitong Asset Management Co., Ltd **Address before**: Unit 2414-2416, main building, no.371, Wushan Road, Tianhe District, Guangzhou City, Guangdong Province **Patentee before**: GUANGDONG GAOHANG INTELLECTUAL PROPERTY OPERATION Co.,Ltd. **Effective date of registration**: 20201201 **Address after**: Unit 2414-2416, main building, no.371, Wushan Road, Tianhe District, Guangzhou City, Guangdong Province **Patentee after**: GUANGDONG GAOHANG INTELLECTUAL PROPERTY OPERATION Co.,Ltd. **Address before**: 518129 Bantian HUAWEI headquarters office building, Longgang District, Guangdong, Shenzhen **Patentee before**: HUAWEI TECHNOLOGIES Co.,Ltd.
2020-12-11	TR01	Transfer of patent right	

Concepts

machine-extracted

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Name	Image	Sections	Count	Query match
response		claims,description	10	0.000
corresponding		claims,description	7	0.000
activation		claims,description	5	0.000
storage cell		claims,description	5	0.000
biological transmission		claims,description	4	0.000

Show all concepts from the description section

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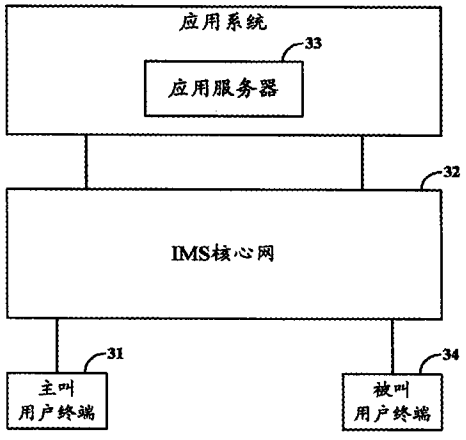
权利要求书 7 页 说明书 17 页 附图 9 页

[54] 发明名称

一种实现视频共享业务的方法、系统及装置

[57] 摘要

本发明公开了一种实现视频共享业务的方法，在本发明中为了实现用户终端之间的视频共享业务，通过应用服务器向被叫用户终端发送短消息的方式，通知被叫用户终端注册到被叫归属网络的 IMS 核心网，在被叫用户终端注册到被叫归属网络的 IMS 核心网后与主叫用户终端实现视频共享业务。本发明还公开了一种实现视频共享的系统及装置。本发明可以保证视频共享的控制信令正确发送到被叫用户终端，在用户终端之间进行独立的视频共享，不强制用户终端必须进行语音呼叫，需要共享时才通过短消息通知被叫用户终端注册到 IMS 核心网，减少了 GPRS 网络资源的空耗率。



1、一种实现视频共享业务的方法，其特征在于，该方法包括以下步骤：

主叫用户终端将含有被叫用户终端标识的视频共享请求发送给应用服务器；

所述应用服务器确定被叫用户终端没有注册到被叫归属网络的 IMS 核心网注册后，通知所述被叫用户终端注册到被叫归属网络的 IMS 核心网，所述被叫用户终端激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册；

主叫用户终端与被叫用户终端进行视频共享。

2、根据权利要求 1 所述的方法，其特征在于，如果所述主叫用户终端和所述被叫用户终端归属于同一网络，则所述主叫用户终端将含有被叫用户终端标识的视频共享请求发送给应用服务器的步骤包括：

所述主叫用户终端将含有被叫用户终端标识的视频共享请求发送给归属网络的 IMS 核心网；所述归属网络的 IMS 核心网将该视频共享请求发送给应用服务器；

所述应用服务器根据该被叫用户终端标识对被叫用户终端进行验证，判断被叫用户终端是注册到被叫归属网络的 IMS 核心网。

3、根据权利要求 1 所述的方法，其特征在于，如果主叫用户终端和被叫用户终端归属于不同网络，则所述主叫用户终端将含有被叫用户终端标识的视频共享请求发送给应用服务器的步骤包括：

主叫用户终端通过主叫归属网络的 IMS 核心网将含有被叫用户终端标识的视频共享请求发送给主叫应用服务器；

所述主叫应用服务器对该主叫用户终端进行验证，如果验证通过，则将该视频共享请求通过所述主叫归属网络的 IMS 核心网、被叫归属网络的 IMS 核心网发送给被叫应用服务器；

所述被叫应用服务器根据该被叫用户终端标识对被叫用户终端验证，判断被叫用户终端是否注册到被叫归属网络的 IMS 核心网；

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并且，由所述被叫应用服务器确定所述被叫用户终端在所述被叫归属网络的 IMS 核心网中是否注册。

4、根据权利要求 3 所述的方法，其特征在于，所述通知所述被叫用户终端注册到被叫归属网络的 IMS 核心网的步骤包括:

所述被叫应用服务器利用所述被叫用户终端标识从所述被叫归属网络获得所述被叫用户终端的电话统一资源标识;

所述被叫应用服务器按照所述被叫用户终端的电话统一资源标识通过短消息中心向被叫用户终端发送包含业务标识的短消息，通知该被叫用户终端注册到被叫归属网络的 IMS 核心网。

5、根据权利要求 4 所述的方法，其特征在于，所述被叫应用服务器是利用所述被叫用户终端标识从被叫归属网络的本地数据库中查询获得被叫用户终端的电话统一资源标识，或从被叫归属网络的 IMS 核心网中归属用户服务器或 E.164 号码实体中查询获得该被叫用户终端的电话统一资源标识。

6、根据权利要求 4 所述的方法，其特征在于，如果所述被叫应用服务器没有获得被叫用户终端的电话统一资源标识，则该方法进一步包括:

所述被叫应用服务器通过被叫归属网络的 IMS 核心网、主叫归属网络的 IMS 核心网通知所述主叫应用服务器，该被叫用户终端无法到达;

所述主叫应用服务器通过所述主叫归属网络的 IMS 核心网通知所述主叫用户终端，该被叫用户终端无法到达。

7、根据权利要求 4 所述的方法，其特征在于，所述被叫用户终端激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册的步骤包括:

所述被叫用户终端向 GPRS 网络发送注册请求，当所述被叫用户终端接收到所述 GPRS 网络发送的完成注册响应后，确定激活 GPRS 连接;

所述被叫用户终端根据所述被叫应用服务器发送的包含业务标识的短消息，通过 GPRS 网络向被叫归属网络的 IMS 核心网发送注册请求;

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所述被叫归属网络的 IMS 核心网收到该注册请求后，对所述被叫用户终端进行注册;

在所述应用服务器确定被叫用户终端没有注册到被叫归属网络的 IMS 核心网注册后，通知所述被叫用户终端注册到被叫归属网络的 IMS 核心网，所述被叫用户终端激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册和主叫用户终端与被叫用户终端进行视频共享之间，该方法进一步包括:

所述被叫归属网络的 IMS 核心网向所述在线状态实体发送第三方注册请求;

所述在线状态实体收到该第三方注册请求后，向所述被叫应用服务器发送被叫用户终端注册通知。

8、根据权利要求 1 所述的方法，其特征在于，如果主叫用户终端和被叫用户终端归属于不同网络，所述被叫应用服务器是根据如下步骤确定被叫用户终端是否注册:

所述被叫应用服务器向在线状态实体发送订阅状态信息请求;

所述在线状态实体收到该订阅状态信息请求后，向所述被叫应用服务器提供自身保存的该被叫用户终端的状态信息;

所述被叫应用服务器根据所述在线状态实体提供的所述状态信息，确定被叫用户终端是否在所述被叫归属 IMS 核心网注册。

9、根据权利要求 1 所述的方法，其特征在于，如果所述应用服务器确定被叫用户终端在归属网络的 IMS 核心网已经注册，则主叫用户终端与被叫用户终端进行视频共享。

10、根据权利要求 3 所述的方法，其特征在于，主叫用户终端与被叫用户终端进行视频共享的步骤包括:

所述被叫应用服务器向被叫用户终端转发主叫用户终端的视频共享请求;

所述被叫应用服务器判断是否接收到来自被叫用户终端的允许视频共享通知，如果是，则通过所述被叫归属网络的 IMS 核心网、所述主叫归属网络的 IMS

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核心网向所述主叫应用服务器发送允许视频共享通知，所述主叫应用服务器通过所述主叫归属网络的 IMS 核心网向所述主叫用户终端发送允许视频共享通知，所述主叫用户终端与所述被叫用户终端进行视频共享；否则，通过所述被叫归属网络的IMS核心网、所述主叫归属网络的IMS核心网向所述主叫应用服务器发送拒绝视频共享通知，所述主叫应用服务器通过所述主叫归属网络的IMS核心网向主叫用户终端发送拒绝视频共享通知。

11、一种实现视频共享的系统，其特征在于，该系统包括:

IMS 核心网，用于转发用户终端与应用服务器之间的消息；在主叫用户终端和被叫用户终端注册后，提供视频共享业务;

应用服务器，用于在接收到来自主叫用户终端的含有被叫用户终端标识的视频共享请求后，如果确定被叫用户终端在被叫归属网络的 IMS 核心网没有注册，通知被叫用户终端注册到被叫归属网络的 IMS 核心网;

主叫用户终端，用于将含有被叫用户终端标识的视频共享请求发送给应用服务器;

被叫用户终端，用于在接收到所述视频共享请求后，如果没有注册到被叫归属网络的IMS核心网，则激活 GPRS 连接并在所述被叫归属网络的IMS核心网进行注册。

12、根据权利要求 11 所述的系统，其特征在于，所述应用服务器包括主叫应用服务器和被叫应用服务器，所述 IMS 核心网包括主叫归属网络的 IMS 核心网和被叫归属网络的 IMS 核心网，

所述主叫归属网络的 IMS 核心网，用于在接收到来自主叫用户终端的视频共享请求后，将所述视频共享请求发送给主叫应用服务器；在所述主叫应用服务器对视频共享请求中含有的被叫用户终端标识验证通过后，将视频共享请求发送给被叫归属网络的 IMS 核心网;

所述主叫应用服务器，用于对所述视频共享请求中含有的被叫用户终端标识验证通过后，将所述视频共享请求发送给主叫归属网络的 IMS 核心网;

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所述被叫归属网络的 IMS 核心网，用于将所述视频共享请求发送给被叫应用服务器；在被叫应用服务器对视频共享请求中含有的被叫用户终端标识验证通过后，将所述视频共享请求发送给被叫用户终端；用于根据收到的被叫用户终端的注册请求，对被叫用户终端进行注册；

所述被叫应用服务器，用于在对所述视频共享请求中含有的被叫用户终端标识验证通过后，如果被叫用户终端在被叫归属网络的 IMS 核心网没有注册，向被叫用户终端发送注册到被叫归属网络的 IMS 核心网的通知；在确定被叫用户终端在被叫归属网络的 IMS 核心网注册后，向被叫用户终端发送视频共享请求。

13、根据权利要求 12 所述的系统，其特征在于，所述被叫应用服务器包括：

注册判断单元，用于在对所述视频共享请求中含有的被叫用户终端标识验证通过后，确定被叫用户终端在被叫归属网络的 IMS 核心网是否注册；

注册通知单元，用于在确定被叫用户终端没有注册时，从所述被叫归属网络的 IMS 核心网查询获得被叫用户终端的电话统一资源标识，根据该电话统一资源标识向被叫用户终端发送注册到被叫归属网络的 IMS 核心网的通知；

视频共享请求单元，用于在确定被叫用户终端在所述被叫归属网络的 IMS 核心网注册后，向所述被叫用户终端发送视频共享请求。

14、根据权利要求 13 所述的系统，其特征在于，所述应用服务器还包括：

验证单元，用于验证所述视频共享请求中含有的被叫用户终端标识，并将验证结果发送给所述注册判断单元。

15、根据权利要求 13 所述的系统，其特征在于，该系统进一步包括：

在线状态实体，用于保存所述被叫用户终端在被叫归属网络的 IMS 核心网中的状态信息；

所述注册判断单元，根据所述在线状态实体中保存的状态信息，确定所述被叫用户终端在被叫归属网络的 IMS 核心网是否注册。

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16、根据权利要求 13 所述的系统，其特征在于，该系统进一步包括：短消息中心，

所述注册通知单元，用于在所述注册判断单元确定被叫用户终端没有注册时，根据电话统一资源标识将含有业务标识的短消息发送给短消息中心；

所述短消息中心，用于在收到所述短消息后，向被叫用户终端发送该短消息；

所述被叫用户终端，用于在收到所述短消息后，激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册。

17、根据权利要求 13 所述的系统，其特征在于，所述被叫归属网络的 IMS 核心网进一步包括：

数据存储单元，用于保存用户终端标识和电话统一资源标识的对应关系；

所述被叫归属网络的 IMS 核心网包括：

查询单元，用于利用从所述对应关系中获得被叫用户终端标识对应的被叫用户终端的电话统一资源标识；

所述数据存储单元为被叫归属网络的本地数据库，或为被叫归属网络的 IMS 核心网的归属用户服务器或 E.164 号码实体。

18、根据权利要求 13 所述的系统，其特征在于，所述被叫归属网络的 IMS 核心网进一步包括：

终端状态单元，用于在接收到被叫用户终端的注册请求后，向所述在线状态实体发送第三方注册请求；

所述在线状态实体，进一步用于在收到所述第三方注册请求后，向所述被叫应用服务器发送被叫用户终端注册通知；

所述注册判断单元，根据在线状态实体发送的所述注册通知，确定被叫用户终端在被叫归属网络的 IMS 核心网注册。

19、一种应用服务器，其特征在于，包括：

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注册判断单元，用于在对所述视频共享请求中含有的被叫用户终端标识验证通过后，确定被叫用户终端在被叫归属网络的 IMS 核心网是否注册；

注册通知单元，用于在确定被叫用户终端没有注册时，从所述被叫归属网络的 IMS 核心网查询获得被叫用户终端的电话统一资源标识，根据该电话统一资源标识向被叫用户终端发送注册到被叫归属网络的 IMS 核心网的通知；

视频共享请求单元，用于在确定被叫用户终端在所述被叫归属网络的 IMS 核心网注册后，向所述被叫用户终端发送视频共享请求。

20、根据权利要求 19 所述的应用服务器，其特征在于，所述应用服务器还包括：

验证单元，用于验证所述视频共享请求中含有的被叫用户终端标识，并将验证结果发送给所述注册判断单元。

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一种实现视频共享业务的方法、系统及装置

技术领域

本发明涉及通信技术领域，更具体的说，是一种实现视频共享业务的方法、系统及装置。

背景技术

随着移动通讯技术的发展，人们不再满足于单一的语音通信方式，而需要全新的多媒体通信方式，这种多媒体通信不仅仅是简单的视音频通信，还包括即时消息、协同工作、流媒体等等业务，特别是新通信方式和传统语音融合的业务。基于互联网和电信网络融合的趋势，各标准化组织提出了下一代网络的概念，第三代伙伴计划（Third Generation Partnership Project，3GPP）在分组承载网基础上引入的全互联网协议（Internet Protocol，IP）业务网络架构的 IP 多媒体子系统（IP Multimedia Subsystem，IMS）核心网，目标是按照个性化用户数据，屏蔽用户接入方式，控制业务能力的开放程度，提供多媒体的通信体验。视频共享业务是指一个用户终端将本地的视频信息与其它一个或多个用户终端共享。其中，用户终端共享的视频信息包括摄像头拍摄的视频、本地视频文件、图片、音乐和动画等。

视频共享业务的信令控制基于会话发起协议（Session Initiation Protocol，SIP），主叫用户终端和被叫用户终端在进行视频共享前，需要在 IMS 核心网中注册。视频共享可以在宽带移动网络和非宽带移动网络之间进行，也可以在非宽带移动网络之间进行。宽带移动网络包括：第三代伙伴计划版本 5（3GPPR5）以及 3GPPR5 之后的移动网络，在 3GPPR5 及其之后的移动网络中所有的呼叫都是通过 IP 承载。非宽带移动网络包括：2.5 代移动通信系统（2.5G）、第三代伙伴计划版本 99(3GPPR99)、第三代伙伴计划版本 4(3GPPR4)，在非宽带移动网

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络中基本呼叫通过电路交换（Circuit Switch，CS）域承载，数据业务通过通用分组无线业务（General Packet Radio Service，GPRS）承载。

图 1 为现有技术中作为主叫的宽带移动网络的用户终端与作为被叫的非宽带移动网络中的用户终端实现视频共享业务的方法。其中，主叫用户终端通过主叫 IMS 核心网与主叫应用服务器进行通信，主叫应用服务器通过主叫 IMS 核心网、被叫 IMS 核心网与被叫应用服务器进行通信，被叫应用服务器通过被叫 IMS 核心网与被叫用户终端进行通信，以下为描述方便，仅使用主叫用户终端、主叫应用服务器、被叫应用服务器、被叫用户终端对本方法的实现方式进行描述。

参阅图 1 所示，现有技术中实现视频共享业务包括以下步骤：

步骤 101～106、主叫用户终端与被叫用户终端基于 SIP 协议进行媒体协商。

具体包括：主叫用户终端通过主叫应用服务器（Application Server，AS）、被叫应用服务器、向被叫用户终端发送视频共享邀请；被叫用户终端通过被叫应用服务器、主叫应用服务器、向主叫用户终端发送媒体协商的结果。

步骤 107～130、主叫用户终端与被叫用户终端建立临时通信。

具体包括：主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送临时响应确认（PRACK）；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送确认消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送更新（UPDATE）消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送振铃消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送临时响应确认（PRACK）消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送确认消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送视频共享请求确认消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送响应确认消息。

步骤 131～134、主叫用户终端与被叫用户终端建立实时传输协议（Real-time

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Transport Protocol，RTP）链路，进行视频共享。

具体包括：主叫用户终端与被叫用户终端建立 RTP 链路；被叫用户终端向主叫用户终端发送接收者报告；主叫用户终端向被叫用户终端发送发送者报告；主叫用户终端与被叫用户终端通过 RTP 链路进行视频共享。

步骤 135～141、被叫用户终端终止共享，主叫用户终端以及被叫用户终端释放通信链路，视频共享结束。

具体包括：被叫用户终端向主叫用户终端发送释放 RTP 链路消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送释放消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送释放确认消息。

图 1 所示的现有技术中，在非宽带移动网络中的用户终端开机后需要激活 GPRS 连接，并注册到 IMS 核心网中，宽带移动网络中的用户终端开机时自动注册到 IMS 核心网中，任何一个网络中的用户终端在注册到 IMS 核心网之前不能与其他网络中的用户终端共享视频信息。注册完成后，双方首先通过 SIP 协议进行连接和媒体协商，然后根据媒体协商的结果进行共享媒体的传输。

当被叫用户终端处于非宽带移动网络中时，由于被叫用户终端的 GPRS 连接通常处于非激活状态，所以造成宽带移动网络中主叫用户终端的控制信令无法正确路由到被叫用户终端。如果为保证控制信令的正确路由，要求非宽带移动网络的用户终端始终处于 GPRS 激活和 IMS 注册状态，不但会大量占用分组域的资源，而且保持 GPRS 的激活状态会增加用户终端的能耗，通常会缩短用户终端的待机时间。

图 2 为现有技术中主叫以及被叫均为非宽带移动网络的用户终端之间实现视频共享业务的方法。其中，主叫用户终端通过主叫 IMS 核心网与主叫应用服务器进行通信，主叫应用服务器通过主叫 IMS 核心网、被叫 IMS 核心网与被叫应用服务器进行通信，被叫应用服务器通过被叫 IMS 核心网与被叫用户终端进行通信，以下为描述方便，仅使用主叫用户终端、主叫应用服务器、被叫应用

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服务器、被叫用户终端对本方法的实现方式进行描述。参阅图 2 所示，该方法包括以下步骤：

步骤 201、主叫用户终端与被叫用户终端建立语音通话；

步骤 202～213、主叫用户终端与被叫用户终端相互查询对方是否具备视频共享能力。

具体包括：主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送查询消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送查询确认消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送查询消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送查询确认消息 200。

步骤 214～219、主叫用户终端与被叫用户终端基于 SIP 协议进行媒体协商。

具体包括：主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送视频共享请求；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送媒体协商的结果；

步骤 220～246、主叫用户终端与被叫用户终端建立临时通信。

具体包括：主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送 PRACK 消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送确认消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送 UPDATE 消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送振铃消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送 PRACK 消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送确认消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送视频共享请求确认消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送响应确认消息。

步骤 247～250、主叫用户终端与被叫用户终端建立 RTP 链路，进行视频共

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享。

具体包括：主叫用户终端与被叫用户终端建立 RTP 链路；被叫用户终端向主叫用户终端发送接收者报告；主叫用户终端向被叫用户终端发送发送者报告；主叫用户终端与被叫用户终端通过 RTP 链路进行视频共享；

步骤 251～257、被叫用户终端终止共享，用户终端 1 以及用户终端 2 释放通信链路，视频共享结束。

具体包括：被叫用户终端向主叫用户终端发送释放 RTP 链路消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送释放消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送释放确认消息。

步骤 258、主叫用户终端与被叫用户终端恢复到电路交换域的语音通话状态。

图 2 所示的现有技术中，主叫用户终端与被叫用户终端首先通过电路交换域建立语音通话，语音通话建立后，主叫用户终端以及被叫用户终端自动激活 GPRS 连接，并注册到 IMS 核心网，此后主叫用户终端与被叫用户终端之间可以实现视频共享。

由于被叫用户终端不需要始终保持 GPRS 激活以及 IMS 注册状态，所以解决了用户终端能耗以及用户终端占用大量分组域资源的问题，但依然存在一些缺点：第一，视频共享必须首先进行电路交换域的语音呼叫，对使用视频共享业务造成一定程度的限制，使用者可能因为语音呼叫的成本而放弃共享；第二，实际上大部分用户的语音呼叫只是拨打电话，并不一定需要进行视频共享，而每次语音呼叫时激活分组域连接，并且注册到 IMS 核心网中，会造成 GPRS 资源的浪费；第三，无论主叫用户终端以及被叫用户终端是否注册到 IMS 核心网，在用户终端之间如果没有建立语音互通，就无法进行视频共享。

发明内容

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本发明提供一种实现视频共享业务的方法、系统及装置，用于解决现有技术中用户终端之间如果没有建立语音互通，就无法进行视频共享的问题。

本发明实施例提供的一种实现视频共享业务的方法，该方法包括以下步骤：

主叫用户终端将含有被叫用户终端标识的视频共享请求发送给应用服务器；

所述应用服务器确定被叫用户终端是否在被叫归属网络的 IMS 核心网注册，如果没有注册，则通知所述被叫用户终端注册到被叫归属网络的 IMS 核心网，所述被叫用户终端激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册；

主叫用户终端与被叫用户终端进行视频共享。

本发明实施例提供的一种实现视频共享的系统包括：

IMS 核心网，用于转发用户终端与应用服务器之间的消息；在主叫用户终端和被叫用户终端注册后，提供视频共享业务；

应用服务器，用于在接收到来自主叫用户终端的含有被叫用户终端标识的视频共享请求后，如果确定被叫用户终端在被叫归属网络的 IMS 核心网没有注册，通知被叫用户终端注册到被叫归属网络的 IMS 核心网；

主叫用户终端，用于将含有被叫用户终端标识的视频共享请求发送给应用服务器；

被叫用户终端，用于在接收到所述视频共享请求后，如果没有注册到被叫归属网络的 IMS 核心网，则激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册。

本发明实施例提供的一种应用服务器包括：

注册判断单元，用于在对所述视频共享请求中含有的被叫用户终端标识验证通过后，确定被叫用户终端在被叫归属网络的 IMS 核心网是否注册；

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注册通知单元，用于在确定被叫用户终端没有注册时，从所述被叫归属网络的 IMS 核心网查询获得被叫用户终端的电话统一资源标识，根据该电话统一资源标识向被叫用户终端发送注册到被叫归属网络的 IMS 核心网的通知；

视频共享请求单元，用于在确定被叫用户终端在所述被叫归属网络的 IMS 核心网注册后，向所述被叫用户终端发送视频共享请求。

通过使用本发明实施例的方法、系统及装置，可以在用户终端之间进行独立的视频共享，不强制用户终端必须进行语音呼叫在用户终端之间实现视频共享业务时，便于用户终端之间实现视频共享业务；被叫用户终端在接收到被叫应用服务器的注册通知后，激活 GPRS 注册到 IMS 核心网，减少了 GPRS 网络资源的空耗率。在本发明实施例中当主叫用户终端需要进行视频共享时，由主叫用户终端将含有被叫用户终端标识的视频共享请求发送给应用服务器，在所述应用服务器确定被叫用户终端没有注册到被叫归属网络的 IMS 核心网注册后，通知所述被叫用户终端注册到被叫归属网络的 IMS 核心网，所述被叫用户终端激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册，在被叫用户终端注册后与主叫用户终端实现视频共享业务。

附图说明

图 1 为现有技术中作为主叫的宽带移动网络的用户终端与作为被叫的非宽带移动网络的用户终端实现视频共享业务的信令流程示意图；

图 2 为现有技术中主叫以及被叫均为非宽带移动网络的用户终端之间实现视频共享业务的信令流程示意图；

图 3 为本发明实施例中实现视频共享业务的系统的主要结构示意图；

图 4 为本发明实施例中实现视频共享业务的系统的具体实施例一的主要结构示意图；

图 5 为本发明实施例中实现视频共享业务的系统的具体实施例二的主要结构示意图；

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图 6 为本发明实施例中实现视频共享业务的系统的具体实施例三的主要结构示意图;

图 7 为本发明实施例中应用服务器的主要结构示意图;

图 8 为实现本发明实施例中实现视频共享业务的方法的主要信令流程示意图;

图 9 为本发明实施例中实现视频共享业务的方法的主要流程示意图。

具体实施方式

在本发明的实施例中为了实现用户终端之间的视频共享业务，通过在移动网络中的应用服务器通知被叫用户终端注册到 IMS 核心网，例如向被叫用户终端发送短消息的方式，在被叫用户终端注册到 IMS 核心网后与主叫用户终端实现视频共享业务。

下面结合附图对本发明的具体实施方式进行说明。

参见图 3 所示，本发明实施例提供的实现视频共享业务的系统主要包括:主叫用户终端 31、IMS 核心网 32、应用服务器 33、被叫用户终端 34。

其中，连接多个用户终端的 IMS 核心网 32，用于转发用户终端与应用服务器 33 之间的消息；在主叫用户终端 31 和被叫用户终端 34 注册后，提供视频共享业务;

应用服务器 33，设置在应用系统中，用于在接收到来自主叫用户终端 31 的含有被叫用户终端标识的视频共享请求后，如果确定被叫用户终端 34 在被叫归属网络的 IMS 核心网没有注册，通知被叫用户终端 34 注册到被叫归属网络的 IMS 核心网;

主叫用户终端 31，用于将含有被叫用户终端标识的视频共享请求发送给应用服务器 33;

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被叫用户终端 34，用于在接收到所述视频共享请求后，如果没有注册到被叫归属网络的 IMS 核心网，则激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册。

参见图 4 所示，当主叫用户终端和被叫用户终端属于不同网络时，所述应用服务器包括主叫应用服务器和被叫应用服务器，IMS 核心网包括主叫归属网络的 IMS 核心网和被叫归属网络的 IMS 核心网。所述主叫归属网络的 IMS 核心网在接收到来自主叫用户终端的含有被叫用户终端标识的视频共享请求后，将所述视频共享请求发送给主叫应用服务器。所述主叫应用服务器对所述主叫用户终端验证通过后，将所述视频共享请求发送给所述主叫归属网络的 IMS 核心网，所述主叫归属网络的 IMS 核心网将所述视频共享请求发送给所述被叫归属网络的 IMS 核心网。所述被叫归属网络的 IMS 核心网将所述视频共享请求发送给被叫应用服务器。

所述应用服务器确定被叫用户终端是否在被叫归属网络的 IMS 核心网注册，如果没有注册，则通知所述被叫用户终端注册到被叫归属网络的 IMS 核心网，所述被叫用户终端激活 GPRS 连接并在所述被叫归属网络的 IMS 核心网进行注册。在被叫应用服务器确定被叫用户终端注册到所述被叫归属网络的 IMS 核心网后，所述被叫应用服务器向被叫用户终端转发主叫用户终端的视频共享请求。所述被叫应用服务器判断是否接收到来自被叫用户终端的允许视频共享通知，如果是，则通过所述被叫归属网络的 IMS 核心网、所述主叫归属网络的 IMS 核心网向所述主叫应用服务器发送允许视频共享通知，所述主叫应用服务器通过所述主叫归属网络的 IMS 核心网向所述主叫用户终端发送允许视频共享通知，所述主叫用户终端与所述被叫用户终端进行视频共享；否则，通过所述被叫归属网络的 IMS 核心网、所述主叫归属网络的 IMS 核心网向所述主叫应用服务器发送拒绝视频共享通知，所述主叫应用服务器通过所述主叫归属网络的 IMS 核心网向主叫用户终端发送拒绝视频共享通知。

所述被叫应用服务器包括：注册判断单元 41、注册通知单元 42、视频共享

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请求单元 43。

其中，所述注册判断单元 41，用于在对所述视频共享请求中含有的被叫用户终端标识验证通过后，确定被叫用户终端在被叫归属网络的 IMS 核心网是否注册；注册通知单元 42，用于在所述注册判断单元 41 确定被叫用户终端没有注册时，根据所述视频共享请求含有的被叫用户终端标识，从所述被叫归属网络的 IMS 核心网查询获得被叫用户终端的电话统一资源标识，根据该电话统一资源标识向被叫用户终端发送注册到被叫归属网络的 IMS 核心网的通知；所述视频共享请求单元 43，用于在所述注册判断单元 41 确定被叫用户终端在被叫归属网络的 IMS 核心网注册后，向被叫用户终端发送视频共享请求。

另外，所述被叫应用服务器还包括：验证单元 44，用于验证所述视频共享请求中含有的被叫用户终端标识，并将验证结果发送给所述注册判断单元 41。

参见图 5 所示，所述被叫归属网络的 IMS 核心网包括：数据存储单元 51、查询单元 52、终端状态单元 53。其中，所述数据存储单元 51，用于保存用户终端和电话统一资源标识的对应关系；所述查询单元 52，用于利用从所述数据存储单元 51 保存的所述对应关系中获得被叫用户终端标识对应的被叫用户终端的电话统一资源标识；终端状态单元 53，用于在接收到被叫用户终端的注册请求后，向所述在线状态实体发送第三方注册请求。所述注册通知单元 42 可以根据所述视频共享请求中含有的被叫用户终端标识将查询通知发送给查询单元 52。所述查询单元 52 从数据单元存储单元 51 中获得被叫用户终端标识对应的被叫用户终端的电话统一资源标识。

当然，该系统还可以进一步包括：在线状态实体，用于保存所述被叫用户终端在被叫归属网络的 IMS 核心网的在线状态信息，这样，所述注册判断单元 41，可以根据在线状态实体中所述在线状态信息，确定被叫用户终端在被叫归属网络的 IMS 核心网是否注册。

当所述注册判断单元 41 根据所述状态信息确定被叫用户终端在被叫归属网络的 IMS 核心网注册时，所述视频共享请求单元 43 向被叫用户终端发送视频共

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享请求。当所述注册判断单元 41 根据所述状态信息确定被叫用户终端在被叫归属网络的 IMS 核心网没有注册时，所述注册通知单元 42 利用所述视频共享请求中含有的被叫用户终端标识从被叫归属网络的 IMS 核心网获得被叫用户终端的电话统一资源标识。当所述注册通知单元 42 没有从所述被叫归属网络的 IMS 核心网获得被叫用户终端的电话统一资源标识时，所述注册通知单元 42 通过被叫归属网络的 IMS 核心网、主叫归属网络的 IMS 核心网通知主叫应用服务器，被叫用户终端无法到达；主叫应用服务器通过主叫归属网络的 IMS 核心网通知主叫用户终端，被叫用户终端无法到达。

另外，该系统还可以进一步包括：短消息中心，所述注册通知单元 42，用于在所述注册判断单元 41 确定被叫用户终端没有注册到被叫归属网络的 IMS 核心网时，根据从被叫归属网络的 IMS 核心网获得的被叫用户终端电话统一资源标识，将包含业务标识的短消息作为触发信令发送给短消息中心。所述短消息中心，用于在接收到所述短消息后，向被叫用户终端发送该短消息，通知被叫用户终端注册到被叫归属网络的 IMS 核心网。

所述被叫用户终端，用于在接收到所述短消息后，根据所述短消息中包含的业务标识激活 GPRS 连接并在被叫归属网络的 IMS 核心网进行注册。所述终端状态单元 53，在接收到被叫用户终端的注册请求后，向所述在线状态实体发送第三方注册请求。当所述被叫归属网络的 IMS 核心网注册成功后，将被叫用户终端注册通知发送给所述在线状态实体，所述在线状态实体将被叫用户终端状态信息发送给所述被叫应用服务器，这样，当所述注册判断单元 41 根据所述状态信息确定所述被叫用户终端在所述被叫归属网络的 IMS 核心网注册时，所述视频共享请求单元 43 向所述被叫用户终端发送所述视频共享请求。

参见图 6 所示，本发明实施例中的在线状态实体包括：终端注册单元 61。其中，终端注册单元 61 用于记录被叫用户终端在 IMS 核心网的状态信息。这样，所述注册判断单元 41，可以根据终端注册单元 61 中被叫用户终端在 IMS 核心网的状态信息，确定被叫用户终端在被叫归属网络的 IMS 核心网是否注册。

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参见图 7 所示，本发明实施例提供的应用服务器主要包括：注册判断单元 71、注册通知单元 72、视频共享请求单元 73。

其中，所述注册判断单元 71，用于在对视频共享请求中含有的被叫用户终端标识验证通过后，确定被叫用户终端在被叫归属网络的 IMS 核心网是否注册；

所述注册通知单元 72，用于在确定被叫用户终端没有注册时，从所述被叫归属网络的 IMS 核心网查询获得被叫用户终端的电话统一资源标识，根据该电话统一资源标识向被叫用户终端发送注册到被叫归属网络的 IMS 核心网的通知；

所述视频共享请求单元 73，用于在确定被叫用户终端在所述被叫归属网络的 IMS 核心网注册后，向所述被叫用户终端发送视频共享请求；

所述应用服务器还包括：验证单元 74，用于验证所述视频共享请求中含有的被叫用户终端标识，并将验证结果发送给所述注册判断单元 71。

参见图 8 所示，实现本发明实施例提供的实现视频共享业务的信令流程包括：

步骤 801～802、主叫用户终端通过主叫应用服务器向被叫应用服务器发送视频共享请求。

步骤 803～806、被叫应用服务器查询被叫用户终端的在线状态。

具体包括：被叫应用服务器向在线状态实体发送订阅状态信息请求；在线状态实体向被叫应用服务器发送请求确认消息；在线状态实体向被叫应用服务器发送状态信息；被叫应用服务器向在线状态实体发送接收确认消息；被叫应用服务器判断被叫用户终端是否注册到 IMS 核心网，如果是，则执行步骤 818，否则执行步骤 807；

步骤 807、被叫应用服务器查询被叫用户终端的电话统一资源标识。

具体包括：被叫应用服务器根据被叫用户终端的 SIP URI，在本地或向归属用户服务器（HSS）、E.164 号码实体（ENUM）等实体查询被叫用户的电话统一资源标识消息；

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步骤 808～813、被叫应用服务器通过短消息中心向被叫用户终端发送短消息。

具体包括：被叫应用服务器通过短消息中心发送短消息；短消息中心向被叫应用服务器发送确认消息；短消息中心向被叫用户终端发送短消息；被叫用户终端向短消息中心发送确认消息；被叫应用服务器通过主叫应用服务器向主叫用户终端发送临时响应消息；

步骤 814～817、IMS 核心网第三方注册。

具体包括：被叫用户终端收到短消息后，向被叫归属 IMS 核心网发送第三方注册请求；IMS 核心网收到该注册请求后，将第三方注册请求发送给在线状态实体；在线状态实体向 IMS 核心网发送注册确认消息；在线状态实体向被叫应用服务器发送被叫用户终端注册通知；被叫应用服务器通过在线状态实体向被叫用户终端发送被叫用户终端注册通知响应消息。

步骤 818、被叫应用服务器向被叫用户终端转发视频共享通知。

步骤 819～848、主叫用户终端与被叫用户终端建立临时通信。

具体包括：被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送确认消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送更新（UPDATE）消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送振铃消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送 PRACK 消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送确认消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送视频共享请求确认消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送响应确认消息；

步骤 849～852、主叫用户终端与被叫用户终端建立 RTP 链路，进行视频共享。

具体包括：主叫用户终端与被叫用户终端建立 RTP 链路；被叫用户终端向

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主叫用户终端发送接收者报告；主叫用户终端向被叫用户终端发送发送者报告；主叫用户终端与被叫用户终端通过 RTP 链路进行视频共享；

步骤 853～859、被叫用户终端终止共享，主叫用户终端以及被叫用户终端释放通信链路，视频共享结束。

具体包括：被叫用户终端向主叫用户终端发送释放 RTP 链路消息；被叫用户终端通过被叫应用服务器、主叫应用服务器向主叫用户终端发送释放消息；主叫用户终端通过主叫应用服务器、被叫应用服务器向被叫用户终端发送释放确认消息；

步骤 860～863、在线状态实体与 IMS 核心网取消注册。

具体包括：被叫应用服务器向在线状态实体发送取消订阅状态信息请求；在线状态实体向被叫应用服务器发送取消订阅确认消息；IMS 核心网向在线状态实体发送取消注册请求；在线状态实体向 IMS 核心网发送取消注册确认消息。

参见图 9 所示，实现本发明实施例提供的实现视频共享业务的方法包括如下步骤：

步骤 901、主叫用户终端通过主叫应用服务器向被叫应用服务器发送视频共享请求，被叫应用服务器收到后，向在线状态实体发送订阅状态信息请求。

步骤 902、在线状态实体收到来自被叫应用服务器的订阅状态信息请求后，向被叫应用服务器发送状态信息。

步骤 903、被叫应用服务器根据在线状态实体发送的状态信息判断被叫用户终端是否注册到 IMS 核心网，如果是，则执行步骤 911，否则，执行步骤 904。

步骤 904、被叫应用服务器在被叫归属网络中查询被叫用户终端的电话号码。

步骤 905、被叫应用服务器判断是否查询到被叫用户终端的电话号码，如果是，执行步骤 906，否则，执行步骤 907。

步骤 906、被叫应用服务器直接或通知其他功能实体通过短消息中心按照电话号码向被叫用户终端发送短消息，执行步骤 908。

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步骤907、被叫应用服务器通过主叫应用服务器向主叫用户终端发送被叫用户终端无法响应通知，执行步骤914。

步骤908、被叫用户终端收到来自短消息中心的短消息后，注册到IMS核心网。

步骤909、IMS核心网向在线状态实体发起第三方注册，IMS核心网注册成功后，向在线状态实体发送被叫用户终端注册通知。

步骤910、在线状态实体接收到来自IMS核心网的被叫用户终端注册通知后，向被叫应用服务器发送被叫用户终端注册通知。

步骤911、被叫应用服务器向被叫用户终端转发主叫用户终端视频共享请求。

步骤912、被叫应用服务器判断是否接收到来自被叫用户终端的允许视频共享通知，如果是，执行步骤915，否则，执行步骤913。

步骤913、被叫应用服务器通过主叫应用服务器向主叫用户终端发送拒绝视频共享通知。

步骤914、主叫用户终端接收到主叫应用服务器发送的被叫用户终端无法响应通知后，取消视频共享请求。

步骤915、主叫用户终端与被叫用户终端进行视频共享。

步骤916、主叫用户终端与被叫用户终端结束视频共享后，被叫应用服务器通知在线状态实体取消订阅被叫用户终端状态信息，被叫用户终端通知IMS核心网取消注册，结束本流程。

主叫用户终端通过主叫应用服务器向被叫应用服务器发送视频共享请求后，被叫应用服务器需要判断被叫用户终端是否已注册到IMS核心网，被叫应用服务器向被叫归属网络中的在线状态实体发送订阅被叫用户终端状态信息请求。由于在线状态实体用于记录被叫用户终端在IMS核心网中的注册状态，在收到被叫应用服务器发送的请求后，在线状态实体向被叫应用服务器发送包含被叫用户终端的状态信息的通知。

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被叫应用服务器在接收到来自在线状态实体的被叫用户终端状态信息后，判断被叫用户终端是否注册到 IMS 核心网，如果被叫应用服务器判断被叫用户终端已注册到 IMS 核心网，则将视频共享请求转发给被叫用户终端。被叫用户终端收到后，与主叫用户终端进行媒体协商以及资源预留，通过主叫用户终端与被叫用户终端之间建立的 RTP 链路进行视频共享。如果被叫应用服务器判断被叫用户终端未注册到 IMS 核心网，则被叫应用服务器在被叫归属网络的本地数据库、HSS 或 ENUM 实体中查询被叫用户终端的电话统一资源标识，如果被叫应用服务器判断查询到被叫用户终端的电话统一资源标识，则从电话统一资源标识中解析出被叫用户终端的电话号码，被叫应用服务器可以直接或通知主叫归属网络以及被叫归属网络中的其他功能实体通过短消息中心向被叫用户终端发送短消息，被叫用户终端收到短消息后注册到 IMS 核心网。如果被叫应用服务器判断未查询到被叫用户终端的电话统一资源标识，则回复被叫用户终端无法到达的响应，主叫用户终端收到后，取消视频共享请求。

被叫用户终端注册到 IMS 核心网后，IMS 核心网向在线状态实体发送第三方注册请求，在线状态实体收到第三方注册请求，将被叫用户终端上线通知发送至被叫应用服务器，或由被叫用户终端向被叫应用服务器直接发送上线通知。被叫应用服务器收到在线状态实体或被叫用户终端发送的注册通知后，向被叫用户终端转发主叫用户终端的视频共享请求，被叫用户终端收到后，与主叫用户终端进行媒体协商以及资源预留，通过主叫用户终端与被叫用户终端之间建立的 RTP 链路进行视频共享。

主叫用户终端与被叫用户终端结束视频共享后，被叫应用服务器通知在线状态实体取消订阅被叫用户终端状态信息，被叫用户终端通知 IMS 核心网取消注册。

当移动网络中不存在在线状态实体时，应用服务器不需要从在线状态实体处获取被叫用户终端的状态信息。当主叫用户终端通过主叫应用服务器以及被叫应用服务器向被叫用户终端发送视频共享请求后，被叫应用服务器根据来自

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IMS 核心网的被叫用户终端离线响应，判断被叫用户终端是否注册到 IMS 核心网，如果被叫用户终端已经注册到 IMS 核心网，则主叫用户终端与被叫用户终端进行视频共享，如果被叫用户终端未注册到 IMS 核心网，则应用服务器直接或通知系统中的其他功能实体通过短消息中心向被叫用户终端发送短消息，被叫用户终端接收到短消息后，注册到 IMS 核心网，被叫用户终端注册成功后与主叫用户终端实现视频共享业务。

通过使用本发明实施例的方法、系统及装置，在用户终端之间实现视频共享业务时，不必首先建立电路交换域的语音呼叫，有利于用户终端之间视频共享业务的实现；用户终端之间不必每次建立语音呼叫并注册到 IMS 核心网，节约了 GPRS 资源；无论用户终端是否注册到 IMS 核心网，只需由应用服务器通知被叫用户终端注册到被叫归属网络的 IMS 核心网，在被叫用户终端注册到所述被叫归属网络的 IMS 核心网后，用户终端之间实现视频共享业务，而不需要通过在用户终端之间建立电路交换域的语音呼叫才能够实现视频共享业务。

显然，本领域的技术人员可以对本发明进行各种改动和变型而不脱离本发明的精神和范围。这样，倘若本发明的这些修改和变型属于本发明权利要求及其等同技术的范围之内，则本发明也意图包含这些改动和变型在内。

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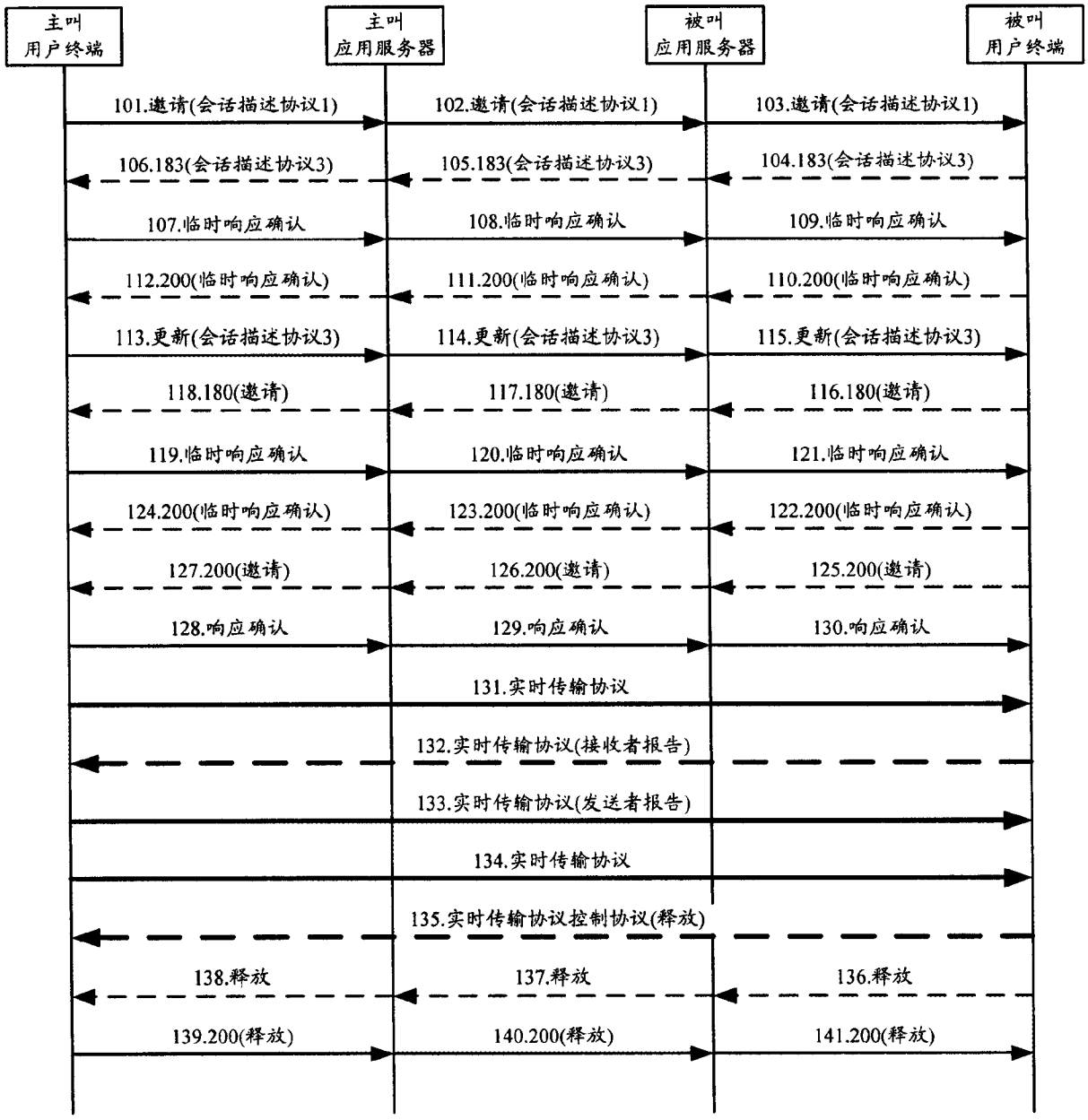


图 1

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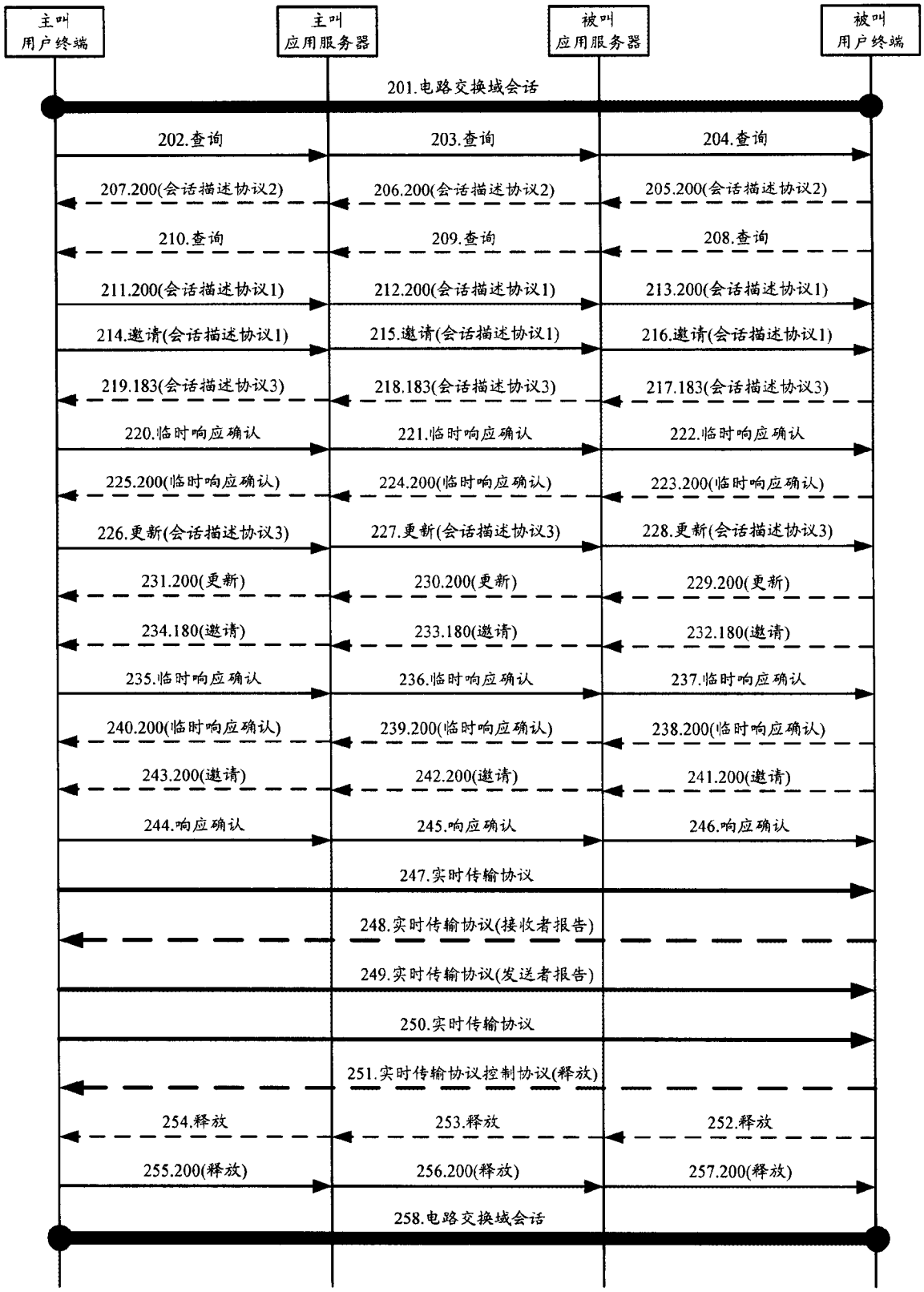


图 2

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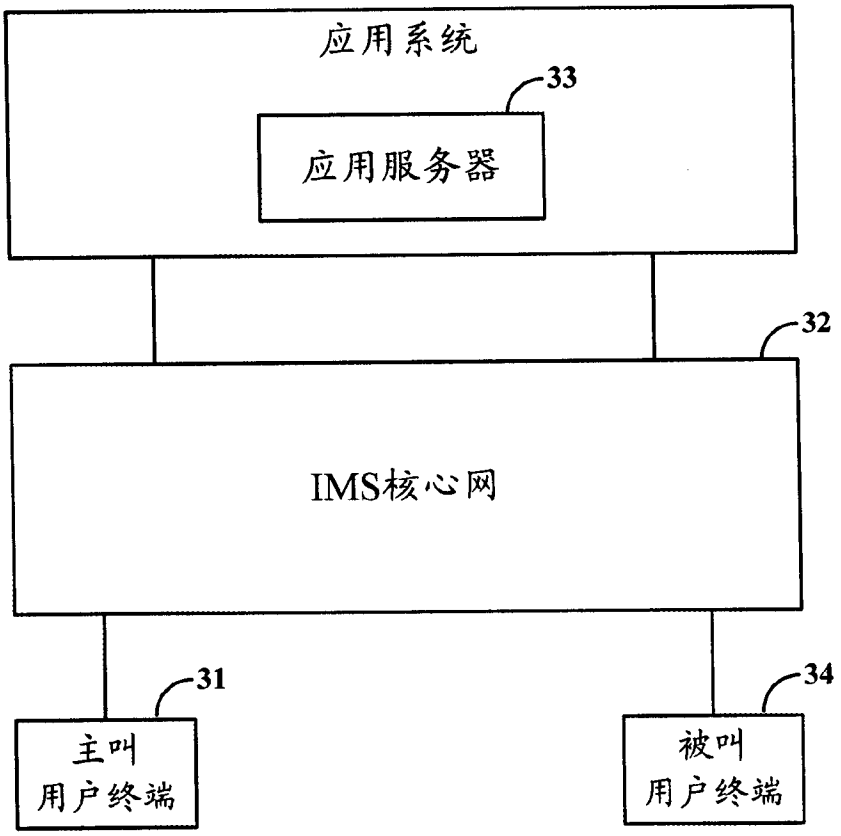


图 3

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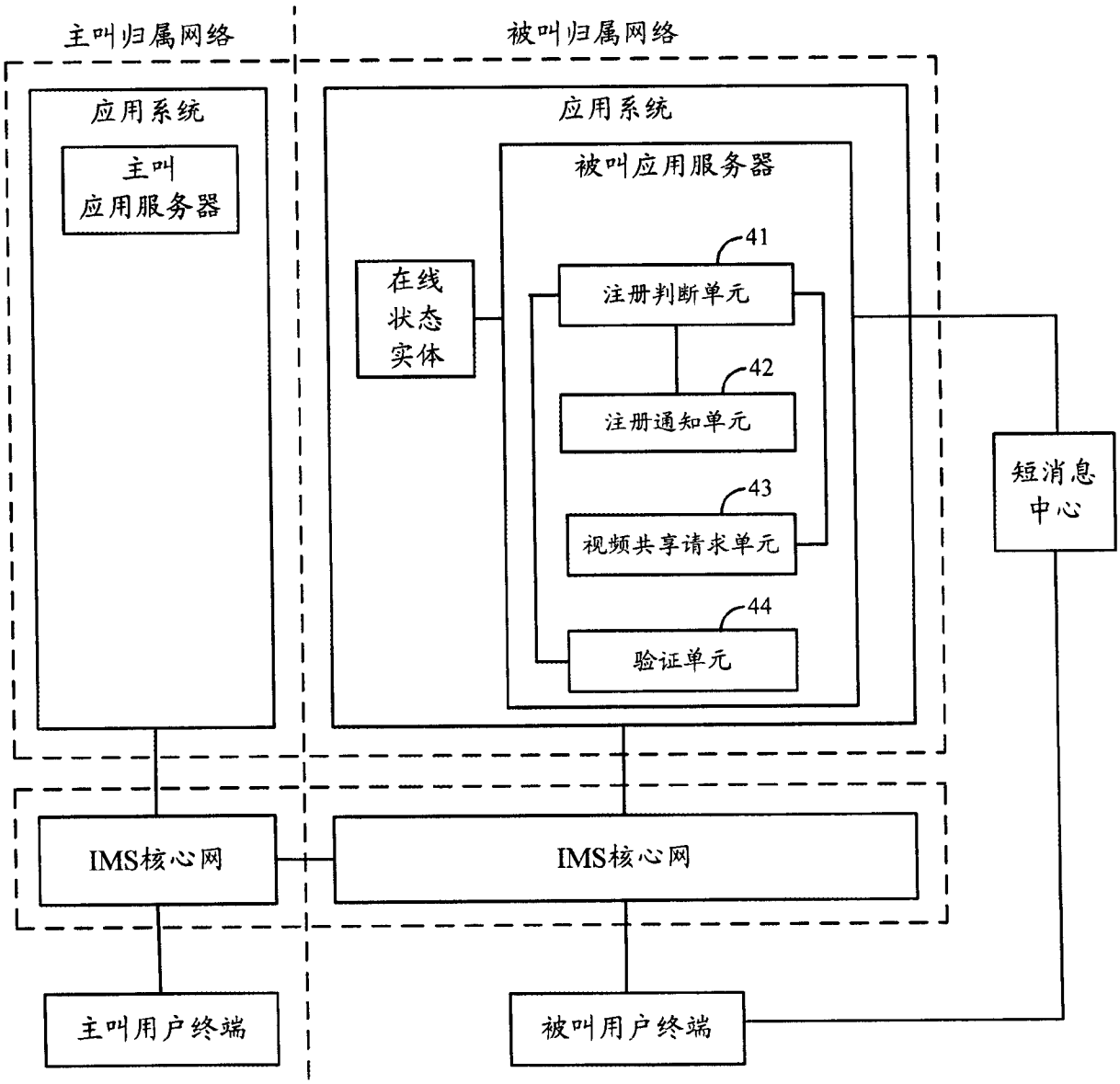


图 4

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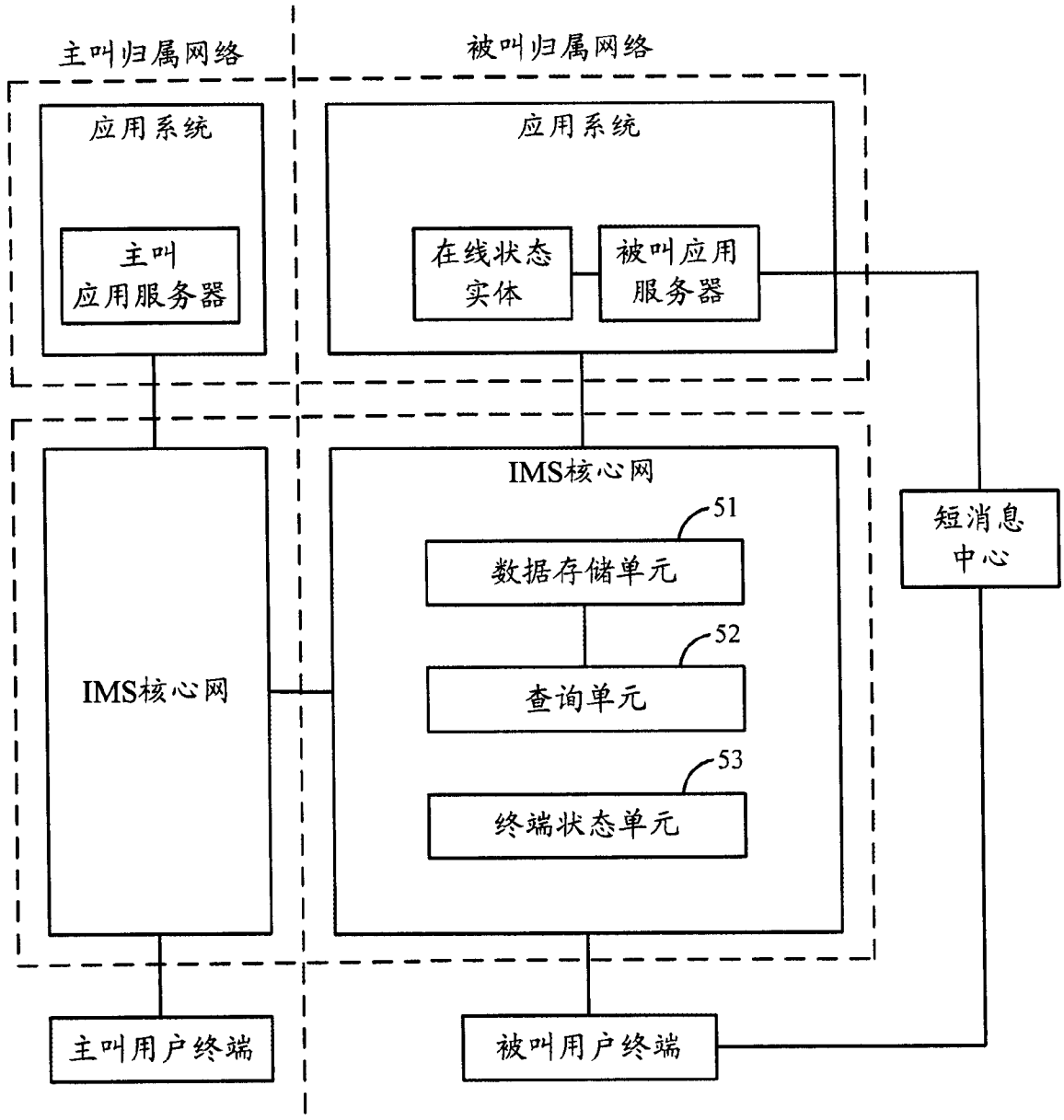


图 5

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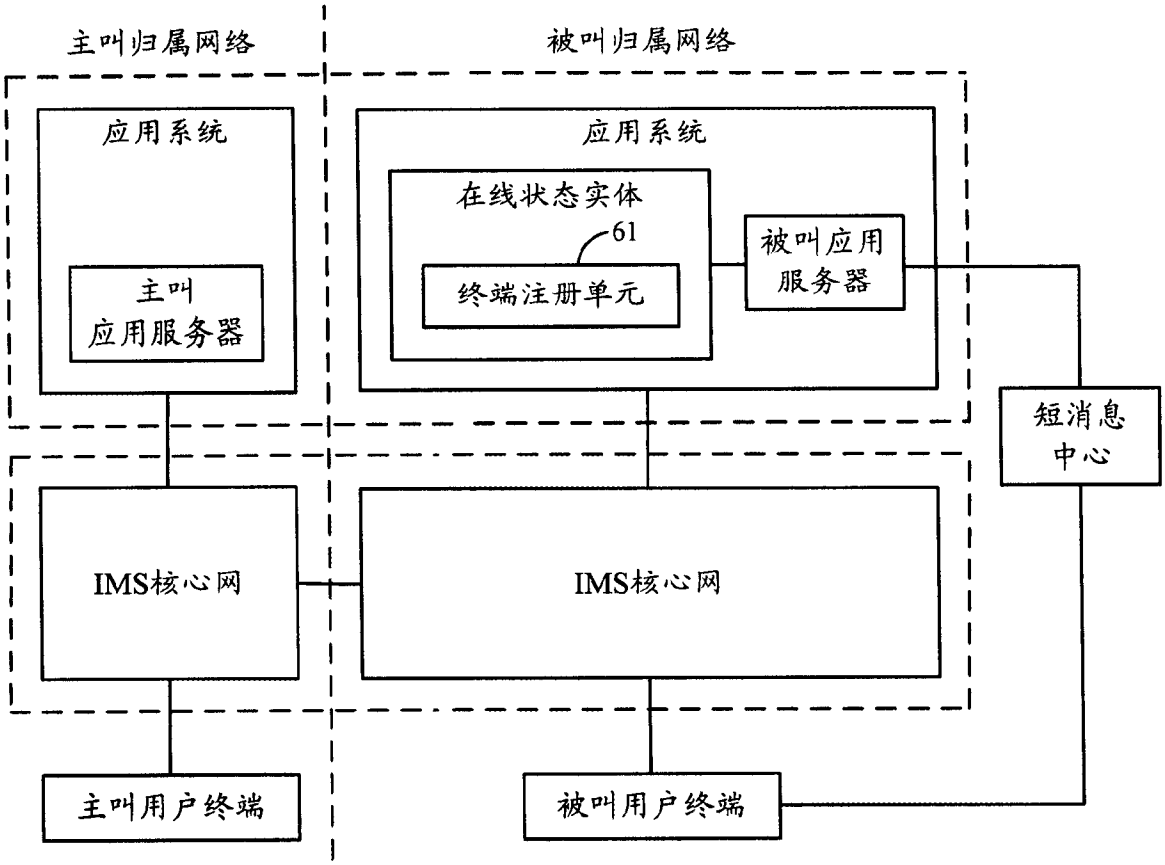


图 6

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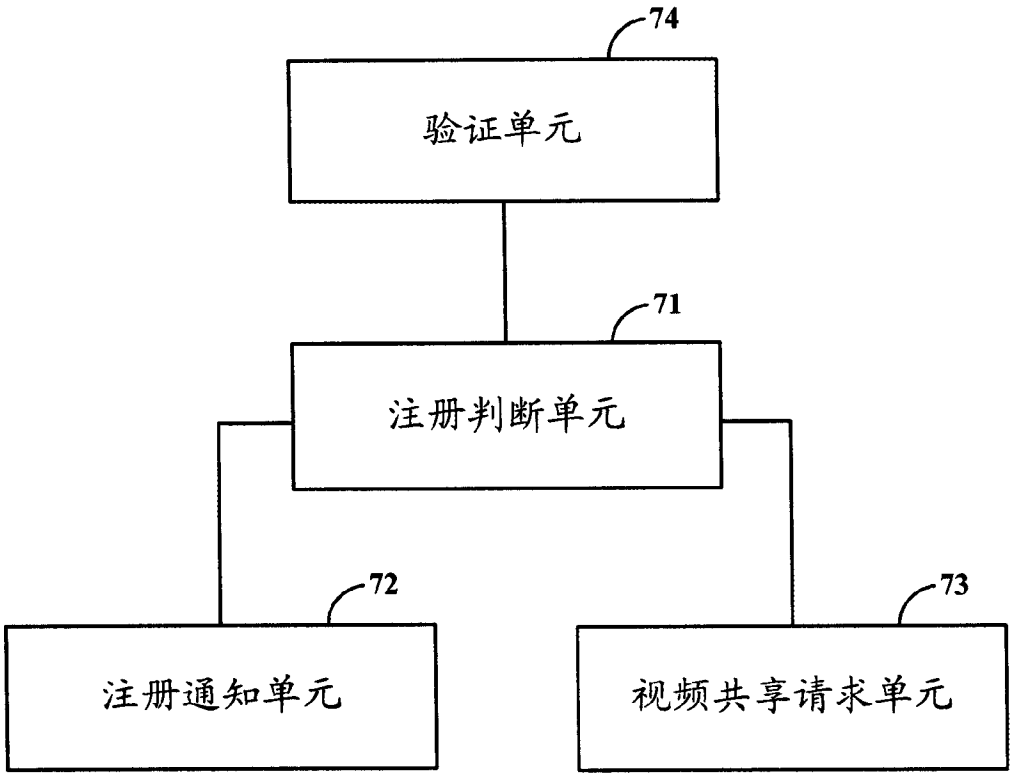


图 7

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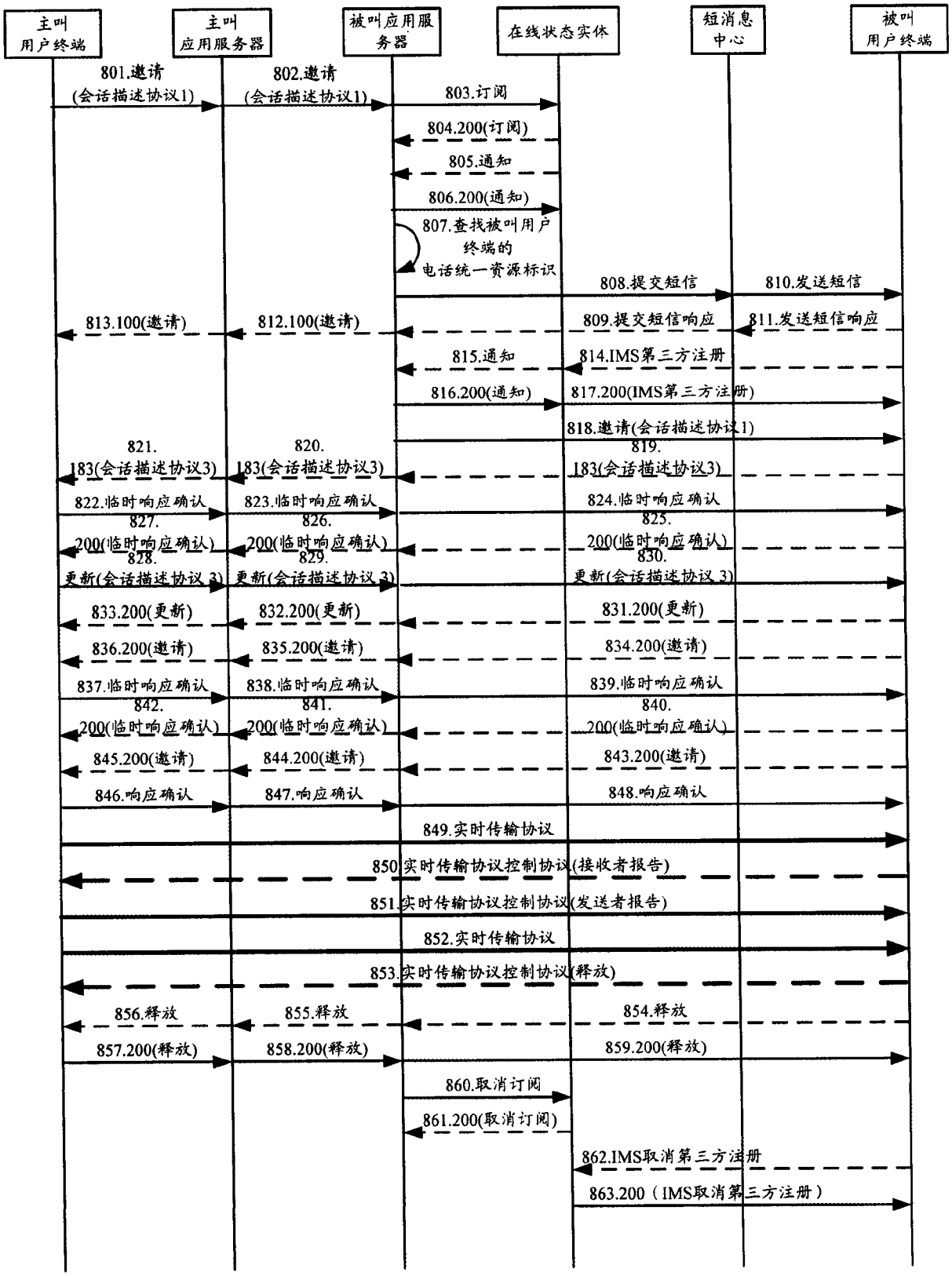


图 8

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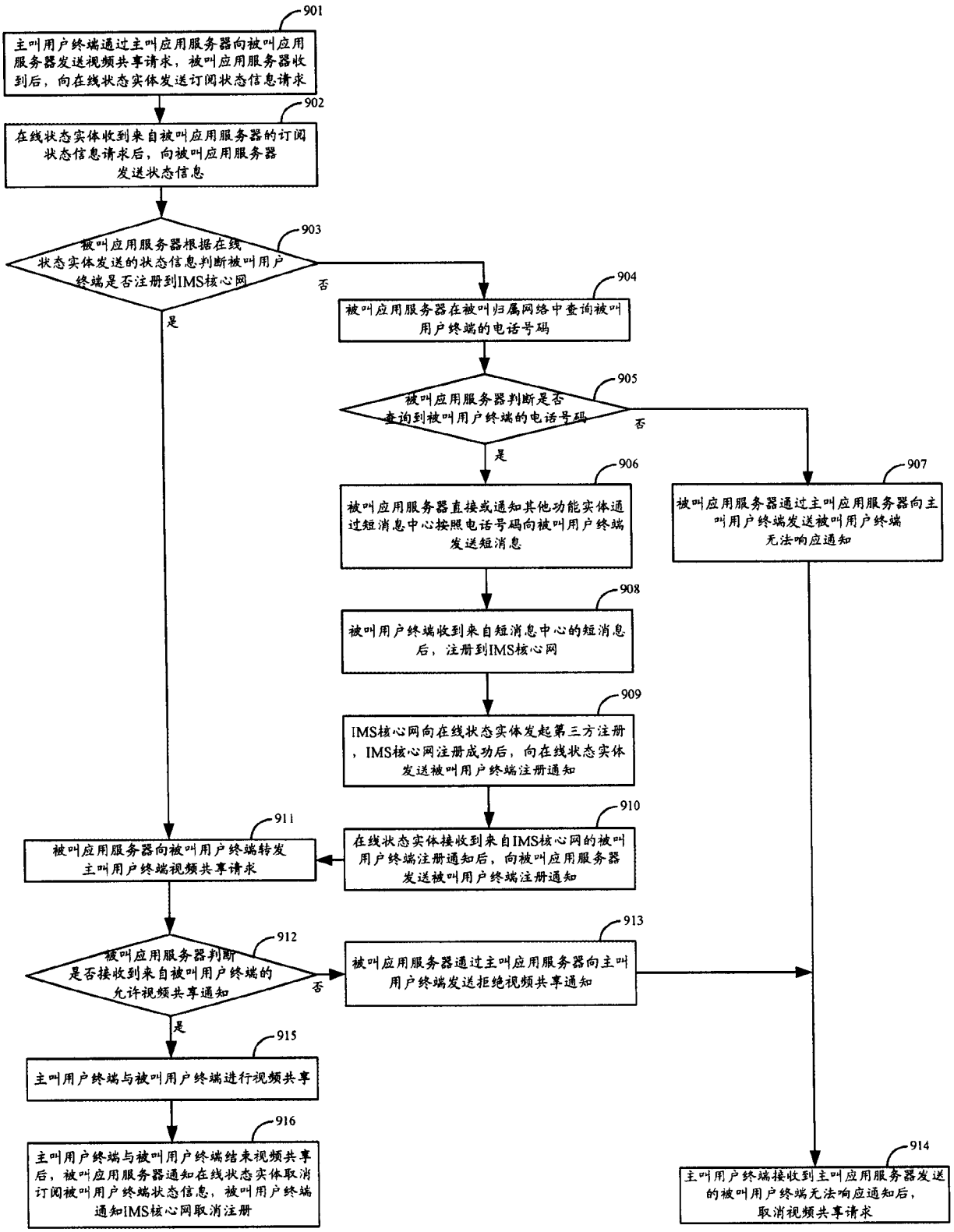


图 9

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Electronic Patent Application Fee Transmittal

Application Number:	16413052
Filing Date:	15-May-2019
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Filer:	David A. Grabelsky
Attorney Docket Number:	10-406-CON-REI

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
		Total in USD ($)		**260**

Electronic Acknowledgement Receipt

EFS ID:	47539741
Application Number:	16413052
International Application Number:	
Confirmation Number:	9330
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Customer Number:	20306
Filer:	David A. Grabelsky
Filer Authorized By:	
Attorney Docket Number:	10-406-CON-REI
Receipt Date:	15-FEB-2023
Filing Date:	15-MAY-2019
Time Stamp:	16:17:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$260
RAM confirmation Number	E20232EG17348943
Deposit Account	
Authorized User	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	10-406-CON-REI_Information_Disclosure_Statement_15Feb23.pdf	1035247 d0b167775d520f31f9a0482c4b5c67acd55ff54e	no	4
Warnings:					
Information:					
2	Foreign Reference	WO2007071461A1.pdf	770860 36510953ce7ff553d119133501fb0dd292b83d59	no	20
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Information:					
3	Foreign Reference	CN1393090A.pdf	8693834 ed197ac8a64ab72fee541687af144916a203c32d	no	48
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6	Non Patent Literature	NPL2_Singh.pdf	10354912 e188b42b5806332b285043fbb2f6267df1174d5e	no	29
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Information:					
			Total Files Size (in bytes):	54930959	

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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

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PTO/AIA/53 (09-12)
Approved for use through 01/31/2020. OMB 0651-0033
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REISSUE APPLICATION: CONSENT OF ASSIGNEE; STATEMENT OF NON-ASSIGNMENT	Docket Number (Optional) 10-406-CON-REI

This is part of the application for a reissue patent based on the original patent identified below.

Name of Patentee(s)
Koninklijke KPN N.V.

Patent Number	Date Patent Issued
9,654,330	May 16, 2017

Title of Invention
METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM

1. [X] Filed herein is a statement under 37 CFR 3.73(c). (Form PTO/AIA/96)

2. [ ] Ownership of the patent is in the inventor(s), and no assignment of the patent is in effect.

One of boxes 1 or 2 above must be checked. If multiple assignees, complete this form for each assignee. If box 2 is checked, skip the next entry and go directly to "Name of Assignee."

The written consent of all assignees and inventors owning an undivided interest in the original patent is included in this application for reissue.

The assignee(s) owning an undivided interest in said originalpatent is/are Koninklijke KPN N.V., and the assignee(s) consents to the accompanying application for reissue.

Name of assignee/inventor (if not assigned)
Koninklijke KPN N.V.

Signature	Date
/David A. Grabelsky/	January 3, 2023

Typed or printed name and title of person signing for assignee (if assigned)

David A. Grabelsky, Agent of Record, Reg. No. 59,208

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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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PTO/AIA/53 (09-12)
Approved for use through 01/31/2020. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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REISSUE APPLICATION: CONSENT OF ASSIGNEE; STATEMENT OF NON-ASSIGNMENT	Docket Number (Optional) 10-406-CON-REI

This is part of the application for a reissue patent based on the original patent identified below.

Name of Patentee(s)
Koninklijke KPN N.V.

Patent Number	Date Patent Issued
9,654,330	May 16, 2017

Title of Invention
METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM

1. [X] Filed herein is a statement under 37 CFR 3.73(c). (Form PTO/AIA/96)

2. [ ] Ownership of the patent is in the inventor(s), and no assignment of the patent is in effect.

One of boxes 1 or 2 above must be checked. If multiple assignees, complete this form for each assignee. If box 2 is checked, skip the next entry and go directly to "Name of Assignee."

The written consent of all assignees and inventors owning an undivided interest in the original patent is included in this application for reissue.

The assignee(s) owning an undivided interest in said originalpatent is/are Koninklijke KPN N.V., and the assignee(s) consents to the accompanying application for reissue.

Name of assignee/inventor (if not assigned)
Koninklijke KPN N.V.

Signature	Date
/David A. Grabelsky/	January 3, 2023

Typed or printed name and title of person signing for assignee (if assigned)

David A. Grabelsky, Agent of Record, Reg. No. 59,208

This collection of information is required by 37 CFR 1.172. 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 6 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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PTO/SB/22 (10-20)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 10-406-CON-REI

Application Number: 16/413,052

Filed: May 15, 2019

For: SYSTEM AND METHOD FOR TRANSMITTING A MULTIMEDIA STREAM

Art Unit: 3992

Examiner: Heneghan, Matthew E

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$220	$110	$55	$
☑	Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$ 640
☐	Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$
☐	Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐	Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 132490.

☐ Payment made via EFS-Web.

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.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. 37 CFR 3.73(b) statement is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration number 59,208.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/David A. Grabelsky/ — Signature

January 3, 2023 — Date

David A. Grabelsky — Typed or printed name

312-913-3353 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 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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PTO/AIA/96 (08-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Koninklijke KPN N.V.

Application No./Patent No.: 9,654,330 Filed/Issue Date: May 16, 2017

Titled: Method and System for Transmitting a Multimedia Stream

Koninklijke KPN N.V., a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Hans Maarten Stokking, Fabian Arthur Walraven, Mattijs Oskar Van Deventer, Omar Aziz Niamut To: Koninklijke KPN N.V. and Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek TNO

   The document was recorded in the United States Patent and Trademark Office at Reel 031143, Frame 0824, or for which a copy thereof is attached.

2. From: Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek TNO To: Koninklijke KPN N.V.

   The document was recorded in the United States Patent and Trademark Office at Reel 039582, Frame 0478, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/AIA/96 (08-12)
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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/David A. Grabelsky/	January 3, 2023
Signature	Date
David A. Grabelsky	59,208
Printed or Typed Name	Title or Registration Number

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Electronic Patent Application Fee Transmittal

Application Number:	16413052
Filing Date:	15-May-2019
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Filer:	David A. Grabelsky
Attorney Docket Number:	10-406-CON-REI

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 2 months with $0 paid	1252	1	640	640
Miscellaneous:				
			Total in USD ($)	**640**

Electronic Acknowledgement Receipt

EFS ID:	47307035
Application Number:	16413052
International Application Number:	
Confirmation Number:	9330
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Customer Number:	20306
Filer:	David A. Grabelsky
Filer Authorized By:	
Attorney Docket Number:	10-406-CON-REI
Receipt Date:	03-JAN-2023
Filing Date:	15-MAY-2019
Time Stamp:	13:48:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$640
RAM confirmation Number	E202313D48480712
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	Amendment/Request for Reconsideration-After Non-Final Rejection	10-406-CON-REI_Response_02Aug22_OA.pdf	247044 84c390beb2dec0703091b339e1911b5210693510	no	19
Warnings:					
Information:					
2	Consent of Assignee accompanying the declaration	10-406-CON-REI_Consent.pdf	309472 5993f15c526d7cad84e462ce06b667ead0e123a2	no	2
Warnings:					
Information:					
3	Extension of Time	10-406-CON-REI_Petition_for_two-month_Extension_of_Time.pdf	227209 da6889eac2ff051d0590e46ca910526f906cef5f	no	2
Warnings:					
Information:					
4	Assignee showing of ownership per 37 CFR 3.73	10-406-CON-REI_3_73_c.pdf	120625 567c843e39dc55976b9cb3ac93e2a2d84974134e	no	3
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	38269 2c8f5eafede7908cc2669cf782b7887ee31fe7be	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	942619		

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

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Docket No. 10-406-CON-REI)

In re the Application Reissue of:	)	
	)	
Hans Maarten Stokking et al.	)	
	)	
Serial No.: 16/413,052	)	
	)	
Filed: May 15, 2019	)	
	)	
U.S. Patent No.: 9,654,330	)	**Examiner: Heneghan, Matthew E**
	)	
Issue: May 16, 2017	)	**Art Unit: 3992**
	)	
For: METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM	)	**Confirmation No.: 9330**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

RESPONSE TO OFFICE ACTION MAILED AUGUST 2, 2022

In response to the Office Action mailed August 2, 2022, Applicant submits the following amendments and remarks. In addition, a Petition for Extension of Time under 37 C.F.R. § 1.136(a) (two-month) is enclosed, along with requisite fees. The instant reissue application is a reissue application of U.S. Patent No. 9,654,330 ("the '330 Patent").

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

Remarks begin on page 10 of this paper.

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Amendments to the Claims

1. (Amended) A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream,

wherein the first protocol, the second protocol, and the third protocol are all different.

2. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

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the gateway providing to the first terminal at least part of the second multimedia session information.

3. (Original) The method according to claim 1, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. (Original) The method according to claim 4, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. (Original) The method according to claim 5, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

7. (Canceled)

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8. (Original) The method of claim 1, wherein the first multimedia stream is the second multimedia stream.

9. (Original) The method of claim 1, wherein the first protocol is a peer-to-peer protocol.

10. (Amended) The method of claim 1, wherein the third protocol is a client-server protocol, and wherein the second [receiving] terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

11. (Original) The method of claim 1, wherein the trigger comprises a network address of the gateway.

12. (Original) The method of claim 11, wherein the network address is a URI or a URI reference.

13. (Canceled)

14. (Canceled)

15. (Original) The method of claim 1, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

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16. (Amended) An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal,

wherein the first protocol, the second protocol, and the third protocol are all different.

17. (Amended) A gateway comprising:

a communication interface; and

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memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, wherein the third protocol is different from the first protocol, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates,

wherein the first protocol, the second protocol, and the third protocol are all different.

18. (Twice amended) The gateway of claim 17, wherein the gateway is further configured to connect to [a] the first terminal supporting [a] the first protocol and to [a] the second terminal supporting [a] the second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

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wherein, in relation to the first protocol, the first terminal is an originating user-side SIP client[of a user at a user side],

wherein the gateway acts as a terminating SIP client,

wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from [the] [user] the first terminal and to provide the first terminal with multimedia session information,

wherein, in relation to the second protocol, the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user, and

[wherein the second terminal uses RTSP for session control, and]

wherein the gateway is further configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. (Amended) The gateway of claim 17, wherein the gateway is further configured to transmit a notification message to the second terminal in response to an invitation of the first terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. (Amended) The gateway of claim 17, wherein the gateway is [embedded] further configured to operate in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), [wherein the third protocol is Real Time Streaming Protocol (RTSP), the IMS network architecture comprising a service-control-function

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component and a media-function component,]wherein [the] memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by [the] a service-control-function component within the IMS network architecture;

triggering the second terminal is controlled by [the] a service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by [the] a media-function component within the IMS network architecture.

21. (Amended) The gateway of claim 17, wherein the gateway is further configured to associate the first multimedia session information and the second multimedia session information with each other.

22. (Original) The gateway of claim 17, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

23. (New-twice-amended) A terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that, when executed by the computing device, causes the terminal to carry out operations including:

- initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session

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information sets up a first media stream originating from the terminal, and wherein the first multimedia session information includes a type of media; and

- transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream.

24. (New-withdrawn) The terminal of claim 23, wherein the identifier is a closed user group ID and the second terminal is part of a closed user group identified by this closed user group ID.

25. (New-withdrawn) The terminal of claim 24, wherein the closed user group identified by the closed user group ID contains a plurality of community subscribers and the closed user group ID is configured for being resolved by the gateway into a plurality of subscriber terminal addresses, enabling the gateway to transmit a plurality of triggers to the plurality of community subscribers notifying them of the availability of the first stream.

26. (New-withdrawn) The terminal of claim 23, wherein the terminal is configured to transmit a list of subscriber terminal addresses, and the identifier is a subscriber terminal address.

27. (New) The terminal of claim 23, wherein the terminal is one of a personal computer, a PDA, or a mobile phone with multimedia capabilities.

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Remarks

1. Summary of the Office Action

In the Office Action mailed August 2, 2022 ("Current Office Action"), the Examiner objected to the instant application under 37 CFR 1.172(a) as allegedly lacking the written consent of all assignees owning an undivided interest in the patent. The Examiner rejected claims 23 and 27 under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,523,696 (Saito) and RFC 2326, "Real Time Streaming Protocol (RTSP)", April, 1998 (Schulzrinne). The Examiner allowed claims 1-6, 8-12, and 15-22.

2. Status of the Claims

Currently pending are claims 1-6, 8-12, and 15-27, of which claims 1, 16, 17, and 23 are independent, and the remainder are dependent.

Applicant has amended claim 23 to recite, *inter alia*, "initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream originating from the terminal, and wherein the first multimedia session information includes a type of media…" where the underlined text indicates the amended language. Support for this amendment can be found generally throughout the original '330 Patent, and specifically at least at column 4, lines 21-22; column 10, lines 51-54; column 11, lines 29-31; and column 12, lines 23-26, for example.

No new matter has been added by way of any of the previously-filed amendments.

3. Response to Objection to Application

The Examiner objected to the instant application under 37 CFR 1.172(a) as allegedly lacking the written consent of all assignees owning an undivided interest in the patent.

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Specifically, the Examiner stated that "[a] proper assent of the assignee in compliance with 37 CFR 1.172 and 3.73 is required in reply to this Office action." Applicant has filed with this submission a Reissue Application Consent of Assignee, form PTO/AIA/53, and a Statement under 37 CFR 3.73(c), form PTO/AIA/96, both of which are believed to be compliance with 37 CFR 1.172(a). Applicant respectfully request that the Examiner withdraw the objection to the instant application.

4. Response to Rejections under pre-AIA 35 U.S.C. § 102(b)

The Examiner rejected claims 23 and 27 under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by Saito and Schulzrinne. Applicant submits that Saito and Schulzrinne do not teach each and every limitation set forth either of claim 23 as amended, or 27, and that these claims are allowable.

The Examiner appeared to make the following alleged mappings between Saito and claim 23 (Final Office Action, pages 4-5):

- "first half gateway" in Saito mapped to the "terminal" of claim 23.
- "second half gateway" in Saito mapped to the "gateway" of claim 23.
- "second AV control terminal" in Saito mapped to the "second terminal" of claim 23.
- "ATM" in Saito mapped to the "first protocol" of claim 23.
- "FANP" in Saito mapped to "first multimedia session information" of claim 23.
- "IEEE 1394" in Saito mapped to the "second protocol" of claim 23.
- "m=" referenced in Schulzrinne assumed inherent in Saito mapped to "type of media" of claim 23.
- the "destination address" of where the "data are to be transmitted" in Saito (column 16, lines 8-10) mapped to "the identifier is configured for being used by the gateway to identify a second terminal" of claim 23.

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- "propose" message in Saito mapped to "notifying the second terminal of the availability of the first stream" of claim 23.

Applicant respectfully submits that, taken together, the Examiner's mappings do not support the assertion that Saito anticipates claim 23, particularly (though not necessarily) in view of the amendments described above. Applicant first addresses the Examiner's mappings in connection with claim 23 as examined in the Current Office Action – i.e., without considering the amendments present amendments to claim 23. This version of claim 23 refers to its form in Applicant's After Final Response filed February 4, 2022 ("AF Response"). Applicant subsequently addresses the amendments herein to claim 23, and how they further distinguish over Saito (and Schulzrinne).

Claim 23 as presented in the AF Response

Applicant first submits that the Examiner has applied an unreasonably broad interpretation to the meaning of the "terminal" of claim 1, instead of "in light of the specification as it would be interpreted by one of ordinary skill in the art." (M.P.E.P § 2111, citing *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364[, 70 USPQ2d 1827, 1830] (Fed. Cir. 2004).) For example, column 10, lines 51-57 of the '330 Patent state:

> The first terminal may be regarded as a functional unit in a device, or a device capable of managing (initiating, negotiating, monitoring and controlling) the transmission of a multimedia stream. Similarly, the second terminal may be regarded as a functional unit in a device, or a device capable of managing (initiating, negotiating, monitoring and controlling) the receipt of a multimedia stream.
>
> In an IMS architecture the SIP protocol is used to set up and/or negotiate a multimedia session between two SIP clients e.g. two IP phones. Here, the term client may indicate a certain capability of a device or terminal. For example a SIP client may refer to a device configured for using the SIP protocol or to a terminal having SIP capability.

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From these examples and elsewhere in the '330 Patent, a person of ordinary skill in the art ("POSITA") would understand a "terminal" to be a device that originates and/or terminates media data. A POSITA would also understand the "gateway" in claim 23 as a device that resides between two (or more) terminals, facilitating multimedia communications between the terminals. While a gateway may itself integrate client functionality, a POSITA would understand that in the context end-to-end multimedia communications, a "terminal" and a "gateway" play different roles.

Applicant further submits that Saito also teaches "terminals" and "gateways" as different devices. A POSITA consulting Saito would much more likely consider the two "half gateways" disclosed therein to, together, correspond to the "gateway" of claim 23, and the "transmitting terminal" of Saito to correspond to the "terminal" of claim 23. The Examiner's mappings appear to disregard what a POSITA would have interpreted in light of both the specification of the '330 Patent and Saito's teachings.

Still further, Applicant submits that a POSITA, in view of the specification of the '330 Patent, would not have interpreted either of ATM or IEEE 1394 in Saito as the "first protocol" or "second protocol" of claim 23. All of the examples of the "first protocol" or "second protocol" in the specification correspond to signaling protocols specific to initiating, negotiating, monitoring, and controlling media data and sessions; e.g., SIP, RTSP, SDP, RTP, MEGACO/H.248, and/or H.323.

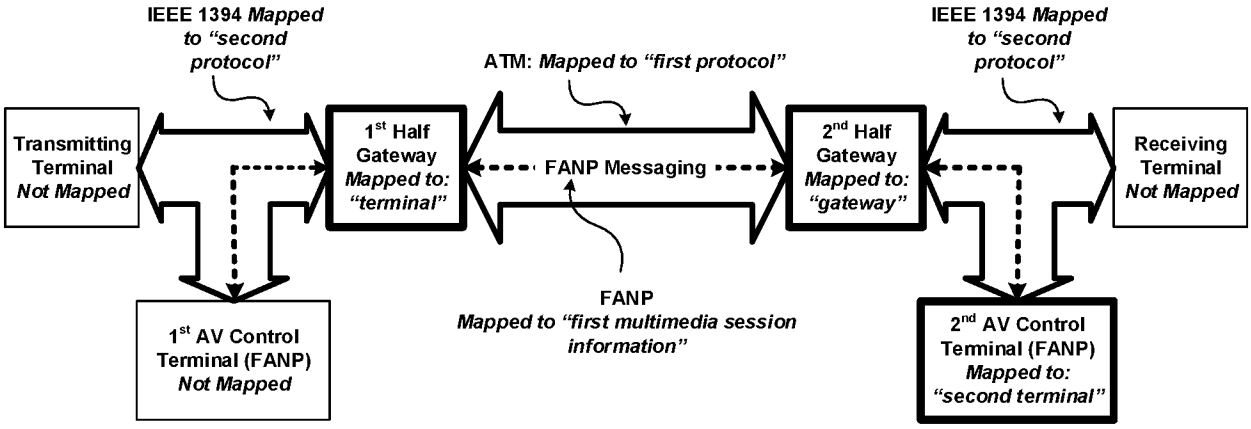
In contrast, ATM and IEEE 1394 disclosed in Saito are essentially transport layer protocols, which may include parameters that links that use the protocols to be set up in consideration of the type of traffic to be carried. At column 1, lines 49-67, Saito teaches:

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> There are many candidates for the *network technologies* that provide the bases for this trend. For example, the *Ethernet* has overwhelming records of the actual use in the office environment and is probably the most promising candidate even for the home PC network. Also, the *ATM* is another serious contender because of the general consensus among the infra-structure constructors (telephone companies, CATV companies, etc.) to keep constructing the infra-structures based on this technology in view of the advantageous characteristics of the ATM such as its fast, real-time, and wide bandwidth properties.
>
> In addition to these candidates, the network technology (bus technology) called *IEEE 1394* has been attracting much attentions recently. This IEEE 1394 has several remarkable characteristics such as its fast, real-time (QOS guaranteed), and plug-and-play properties, so that there is a high expectation especially among the AV industries on the IEEE 1394 as the most promising candidate for a future scheme for inter-connecting digital AV devices. (Emphasis added.)

As seen, Saito considers ATM and IEEE 1394 in the same network technology category and Ethernet. A POSITA interpreting the "first protocol" or "second protocol" of both claim 23 as a whole, and in view of the specification of the '330 Patent, would not have considered either ATM or IEEE 1394 (or Ethernet) as analogous.

The failure of Saito to anticipate claim 23 may be seen more specifically with respect to a graphical representation of the Examiner's mappings of Saito to claim 23, shown in the following figure:



In this figure, blocks rendered in thick lines correspond to features of Saito that the Examiner

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mapped to claim 23, while those in thin lines are features that the Examiner did not map.

According to the Examiner's mapping, the ATM link between the first and second half gateways of Saito map to the "first protocol" of claim 23, and the FANP messaging that is carried on this link maps to the "first multimedia session information" of claim 23 that is exchanged "between the terminal and the gateway" of claim 23 "using" the "first protocol."

However, Applicant submits that is not what Saito teaches. Rather, Saito teaches that FANP messaging is exchanged between the "first AV control terminal" and the "second AV control terminal," as shown clearly in Figure 3 of Saito, for example. But the Examiner did not map the "first AV control terminal" to any feature of claim 23, and mapped the "second AV control terminal" to the "second terminal" of claim 23.

Further, the "exchange" of the "first multimedia session information between the terminal and the gateway" of claim 23 "sets up a first media stream from the terminal." Referring again to Figure 3 in Saito, "video data" are transmitted from the "transmitting terminal 1" to the "receiving terminal 6" by way of the two half gateways, which are represented as a single entity, ignoring the ATM link, in the figure. The Examiner did not map either of the transmitting or receiving terminals of Saito to any feature of claim 23, and there is no "media stream" set up from the "first half gateway" that the Examiner mapped to the "terminal" of claim 23. Indeed, according to Saito (column 17, lines 14-21), all the half gateways do is switching between datalink layers. However it is the "transmitting terminal 1" from which a media stream is set-up.

Also according to the Examiner's mapping, the "type of media" of claim 23 is inherent in Saito by virtue of its reference to RTSP (Schulzrinne) and the reference in RFC 2326 to the "m=" parameter. However, claim 23 recites, *inter alia*, that the "type of media" is included in

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the "first multimedia session information," to which the Examiner mapped FANP of Saito. It is clear that FANP is not RTSP, so, regardless of whether the "m=" parameter is considered inherent is Saito, it would not be included in FANP, and therefore not included in what the Examiner mapped to the "first multimedia session information." That is, the Examiner's mappings are not consistent with the inclusion of "type of media" in the "first multimedia session information."

Regarding the Examiner's mapping of the "propose" message in Saito to "notifying the second terminal of the availability of the first stream" of claim 23, Applicant submits that this is inconsistent with Saito's teachings. Specifically, as shown in Figure 3 and column 16, lines 1-28 of Saito (and cited by the Examiner), the "propose" message is part of a message sequence shown in steps S8-S11 used to establish various channels needed to transmit data between the transmitting and receiving terminals. Transmission of video data from the transmitting terminal does not begin until later, at step S16. Accordingly, there is no "media stream" available at the time to the (two) "propose" message(s), so it is not possible to make the Examiner's mapping.

Regarding the Examiner's mapping of the "destination address" of where the "data are to be transmitted" in Saito to "the identifier is configured for being used by the gateway to identify a second terminal" of claim 23, Applicant submits that this, too, is not consistent with Saito's teachings. Namely, while Saito discloses that, in a generic sense, a FANP message may contain a destination address for data (column 16, lines 8-10), Saito does not teach such destination address to be present in the "propose" message sent by the "second half gateway 4" to the "second AV control terminal 5" (column 16, lines 37-41). Further, Saito teaches that the "receiving terminal 6" is the destination of the transmitted video data, so the "second AV control terminal 5" is not, in any case, the destination of the video data transmitted by the "transmitting

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terminal 1." As such Saito's destination address would not point to the "second AV control terminal 5." Accordingly, the Examiner's mapping of the "second AV control terminal" in Saito to the "second terminal" of claim 23 identifies the wrong "terminal" in Saito as the intended recipient of the transmitted video data.

It follows that adopting the Examiner's mapping would preclude interpreting Saito's teachings as anticipating the limitation of claim 23 that "the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal." And even supposing a mapping of the "receiving terminal 6" of Saito to the "second terminal" of claim 23 would not support a finding of anticipation. This is because the "receiving terminal 6" of Saito is notified of the availability of a stream by the "second AV control terminal 5," and *not* by the second half gateway (column 16, lines 49-54: "the second AV control terminal 5 commands the receiving terminal 6 to receive the data…").

In view of the above discussion, Applicant submits that Saito (with or without Schulzrinne) does not anticipate claim 23 in the form presented in the AF Response. However, in the interest of advancing prosecution, and without acquiescing to the Examiner's characterizations, Applicant has amended claim 23, as described above, in a manner that further distinguishes over Saito and also precludes the Examiner's mappings.

Claim 23 as amended in the present submission

Saito and Schulzrinne do not teach "initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream originating from the terminal, and wherein the first multimedia session information includes a type of media"

Applicant submits that the language "initiating, using a first protocol, exchange of first multimedia session information between the terminal and the gateway" requires that: (1) the act

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of initiating the exchange is carried out by the "terminal"; and (2) initiating an exchange is at least one specific purpose or function of the "first protocol." This rules out ATM, which in the Examiner's mapping serves only as a transport between the two half gateways, but is not by designed or specified as an initiation protocol.

Applicant further submits that the language "sets up a first media stream originating from the terminal" requires that: (1) the "terminal" is the source of the "first media stream"; and (2) setting up the "first media stream" involves establishing some form of media session as the "terminal" to support the "first media stream." This rules out the "first half gateway" since the "video data transmission" of Saito originates at the "transmitting terminal."

Saito and Schulzrinne do not teach "transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream"

Applicant has not amended the language of the limitation since the AF Response. However, Applicant submits that for at least the reasons discussed above in connection with the Examiner's mapping of (1) the "destination address" of where the "data are to be transmitted" in Saito to "the identifier is configured for being used by the gateway to identify a second terminal" of claim 23 and, (2) the "propose" message in Saito to "notifying the second terminal of the availability of the first stream" of claim 23, Saito and Schulzrinne also do not teach "transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream."

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For at least the reasons above, Applicant submits that Saito and Schulzrinne do not anticipate claim 23, and that claim 23 is allowable.

Claim 27 depends from claim 23, and is therefore allowable for at least the reason that it depends from an allowable claim.

Applicant further submits that withdrawn claims 24-26 are each allowable for at least the reason that each depends from claim 23, which is allowable for at least the reasons above. Applicant therefore respectfully requests that the Examiner rejoin and allow claims 24-26.

5. Allowable Subject Matter

Applicant thanks the Examiner for allowing claims 1-6, 8-12, and 15-22.

6. Conclusion

For the foregoing reasons, Applicant submits that the claims are allowable. Therefore, Applicant requests favorable reconsideration and allowance of the claims.

Applicant does not acquiesce in any assertion in the office action that is not expressly addressed by these remarks.

Should the Examiner wish to discuss this case with the undersigned, the Examiner is invited to call the undersigned at (312) 913-3353.

Respectfully submitted,

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP

Date: January 3, 2023

By: /David A. Grabelsky/
David A. Grabelsky
Reg. No. 59,208

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/413,052	05/15/2019	Hans Maarten Stokking	10-406-CON-REI	9330

20306 7590 08/02/2022

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP
300 S. WACKER DRIVE
32ND FLOOR
CHICAGO, IL 60606

EXAMINER	
HENEGHAN, MATTHEW E	

ART UNIT	PAPER NUMBER
3992	

NOTIFICATION DATE	DELIVERY MODE
08/02/2022	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):

docketing@mbhb.com

Office Action Summary	Application No. 16/413,052	Applicant(s) Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	AIA (FITF) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 04 February 2022.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-6,8-12,15-23 and 27 is/are pending in the application.

5a) Of the above claim(s) 24-26 is/are withdrawn from consideration.

6) ☑ Claim(s) 1-6,8-12 and 15-23 is/are allowed.

7) ☑ Claim(s) 23 and 27 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 15 May 2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☑ Certified copies of the priority documents have been received in Application No. 12808665.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. For reissue applications filed on or after September 16, 2012, all references to 35 U.S.C. 251 and 37 CFR 1.172, 1.175, and 3.73 are to the current provisions.

3. In response to the previous Office Action, Applicant has amended claims 10 and 18. Claims 1-6, 8-12, 15-23, and 27 have been examined. Claims 24-26 stand as withdrawn.

Continued Examination Under 37 CFR 1.114

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4 February 2022 has been entered.

Priority

5. The instant application is a broadening reissue of U.S. Patent Application No. 14/015,765, filed 30 August 2013, now U.S. Patent No. 9,654,330 (hereinafter the '330 patent), issued 16 May 2017. The '330 patent was filed as a continuation of U.S. Patent Application No. 12/808,665, filed 16 June 2010, now U.S. Patent No. 8,549,151 (hereinafter the '151 patent), which was a national stage entry of PCT application PCT/EP08/11014, filed 22 December 2008, which claimed priority to Provisional U.S. Patent Application No. 61/008,664, filed 21 December 2007, and foreign priority to European Patent Application No. EP08002517.4, filed 21 February 2008.

Reissue Applications

6. The application is objected to under 37 CFR 1.172(a) because the person who signed the submission establishing ownership interest is not recognized as an officer of the assignee, and the person who signed it has not been established as being authorized to act on behalf of the assignee. See MPEP § 325.

7. This application is objected to under 37 CFR 1.172(a) as lacking the written consent of all assignees owning an undivided interest in the patent. The consent of the assignee must be in compliance with 37 CFR 1.172. See MPEP § 1410.01.

A proper assent of the assignee in compliance with 37 CFR 1.172 and 3.73 is required in reply to this Office action.

8. Both the submission establishing ownership interest and the written consent of the assignee would be acceptable if they were signed by any person described as having such authority in MPEP §325(V). These include officers of the assignee or a patent practitioner of record. There is a presumption that an assignee's general counsel is not considered to be such a person.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 23 and 27 are rejected under pre-AIA 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 6,523,696 to Saito et al. (hereinafter Saito) and Schulzrinne et al., RFC 2326, "Real Time Streaming Protocol (RTSP)", April, 1998 (hereinafter RFC 2326).

As per claim 23, Saito discloses a terminal (a 1st half gateway connected to a 1st AV Control Terminal, see figure 1 and column 12, lines 5-11) configured to communicate with a gateway 2nd Half Gateway 4), the terminal comprising a computing device (a physical processing unit 101, see column 12, lines 47-53) having memory storing software (which is inherent in such a system) that, when executed by the computing device, causes the terminal to carry out operations including: using a first protocol to exchange first multimedia session information (see column 16, lines 1-28)

between the terminal and the gateway (communication with the 2nd Half Gateway uses the ATM protocol, see column 12, lines 5-11), wherein the exchange of the first multimedia session information sets up a first media stream from the terminal (see column 15, lines 30-67), and wherein the first multimedia session information includes a type of media (although Saito does not explicitly recite the transmitting of a media type, Saito does state that RTSP should be used for such operations, see column 20, lines 53-61; RFC 2326, which defined the RTSP protocol as of the time of Saito's disclosure, states that the protocol includes a "m=" parameter for specifying media type, Appendix C.1.3; the presence of a type of media is therefore inherent in Saito); and transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal (see column 16, lines 8-14), in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol (ATM vs. IEEE1394/FANP, see Fig. 2 and column 12, lines 47-63), notifying the second terminal of the availability of the first stream (the "Propose" message, see column 16, lines 22-25).

Regarding claim 27, the terminal may be a PC (see column 18, line 56 to column 19, line 5).

Allowable Subject Matter

10. Claims 1-6, 8-12, 15-22 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter: No art could be found that recited the limitations of claims 1, 16, and 17 such that each of the three recited protocols are different. Claims 2-6, 8-12, 15, and 18-22 would be patentable based upon their dependence on allowable subject matter.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW E HENEGHAN whose telephone number is (571)272-3834. The examiner can normally be reached on M-F 8-5.

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, Michael Fuelling can be reached on (571)270-1367. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/MATTHEW E HENEGHAN/
Primary Examiner, Art Unit 3992

Conferees:

/MINH DIEU NGUYEN/
Primary Examiner, Art Unit 3992
/MICHAEL FUELLING/
Supervisory Patent Examiner, Art Unit 3992

Notice of References Cited	Application/Control No. 16/413,052	Applicant(s)/Patent Under Reexamination Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	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-6523696-B1	02-2003	Saito; Takeshi	H04N21/64307	709/236
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	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	Schulzrinne et al., RFC 2326, “Real Time Streaming Protocol (RTSP)”, April, 1998.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

CPC - Searched*		
Symbol	Date	Examiner
H0429/08522,06517;H0465/1069,1006,4076,104,103,1016,608	01/07/2021	MH
H04L67/1091;H04L69/08	01/07/2021	MH

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 keyword and class searches	01/07/2021	MH
Review of previous search	08/10/2021	MH
PE2E Update search, see notes	07/22/2022	MH
NPL search	07/22/2022	MH

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

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

CLAIM		DATE								
Final	Original	01/07/2021	08/10/2021	07/22/2022						
	1	✓	✓	=						
	2	✓	✓	=						
	3	✓	✓	=						
	4	✓	✓	=						
	5	✓	✓	=						
	6	✓	✓	=						
	7	✓	✓	-						
	8	✓	✓	=						
	9	✓	✓	=						
	10	✓	✓	=						
	11	✓	✓	=						
	12	✓	✓	=						
	13	✓	✓	-						
	14	✓	✓	-						
	15	✓	✓	=						
	16	✓	✓	=						
	17	✓	✓	=						
	18	✓	✓	=						
	19	✓	✓	=						
	20	✓	✓	=						
	21	✓	✓	=						
	22	✓	✓	=						
	23	✓	✓	✓						
	24	N	N	N						
	25	N	N	N						
	26	N	N	N						
	27	✓	✓	✓						

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L60	14	(h04n21/4108).cpc. AND @pd<"20061221" AND gateway	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2022/07/12 04:45 PM
L61	38	(h04n21/4108).cpc. AND @ad<"20071221" AND gateway	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2022/07/12 04:45 PM
L62	12	(h04n21/4108).cpc. AND @ad<"20071221" AND gateway AND session	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2022/07/12 04:49 PM
L63	27	(h04n21/4108).cpc. AND @ad<"20071221" AND gateway AND (session stream)	(US-PGPUB; USPAT; DERWENT)	OR	OFF	OFF	2022/07/12 05:08 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16/413,052	Filing Date	2019-05-15	Docket Number (if applicable)	10-406-CON-REI	Art Unit	3992
First Named Inventor	Hans Maarten Stokking			Examiner Name	Heneghan, Matthew E		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 132490

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/David A. Grabelsky/	Date (YYYY-MM-DD)	2022-02-04
Name	David A. Grabelsky	Registration Number	59208

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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

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.

PTO/SB/22 (10-20)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 10-406-CON-REI

Application Number: 16/413,052

Filed: May 15, 2019

For: SYSTEM AND METHOD FOR TRANSMITTING A MULTIMEDIA STREAM

Art Unit: 3992

Examiner: Heneghan, Matthew E

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$220	$110	$55	$
☐	Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$
☑	Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$ 1,480
☐	Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐	Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 132490.

☐ Payment made via EFS-Web.

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.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. 37 CFR 3.73(b) statement is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration number 59,208.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/David A. Grabelsky/ — Signature

February 4, 2022 — Date

David A. Grabelsky — Typed or printed name

312-913-3353 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 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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Electronic Patent Application Fee Transmittal

Application Number:	16413052
Filing Date:	15-May-2019
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Filer:	David A. Grabelsky
Attorney Docket Number:	10-406-CON-REI

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	1253	1	1480	1480
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1360	1360
		Total in USD ($)		**2840**

Electronic Acknowledgement Receipt

EFS ID:	44919119
Application Number:	16413052
International Application Number:	
Confirmation Number:	9330
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Customer Number:	20306
Filer:	David A. Grabelsky
Filer Authorized By:	
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Receipt Date:	04-FEB-2022
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Time Stamp:	13:09:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$2840
RAM confirmation Number	E202224D09452865
Deposit Account	
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1	Amendment Submitted/Entered with Filing of CPA/RCE	10-406-CON-REI_Response_plus_RCE_16Aug21_FOA.pdf	215836 24d592efbe1cf97b61e5bbd110dea2f027539f75	no	19
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	10-406-CON-REI_Request_for_Continued_Examination_16Aug21_FOA.pdf	1667108 aae5202b6a19cf3438188f0eeda6520eabfa2ae1	no	3
Warnings:					
Information:					
3	Extension of Time	10-406-CON-REI_Petition_for_three-month_Extension_of_Time.pdf	225974 d70017f834cb71b8109e58687a1e92ef5b6fa513	no	2
Warnings:					
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4	Fee Worksheet (SB06)	fee-info.pdf	40792 3bb1fe8a6c7712fde84b32b3dd55e13f2aa1fe55	no	2
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Docket No. 10-406-CON-REI)

In re the Application Reissue of:	)	
	)	
Hans Maarten Stokking et al.	)	
	)	
Serial No.: 16/413,052	)	
	)	
Filed: May 15, 2019	)	
	)	
U.S. Patent No.: 9,654,330	)	**Examiner: Heneghan, Matthew E**
	)	
Issue: May 16, 2017	)	**Art Unit: 3992**
	)	
For: METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM	)	**Confirmation No.: 9330**

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SUBMISSION UNDER 37 C.F.R. § 1.114

In response to the Office Action mailed August 16, 2021, Applicant submits the following amendments and remarks, together with a Request for Continued Examination and requisite fees. In addition, a Petition for Extension of Time under 37 C.F.R. § 1.136(a) (three-month) is enclosed, along with requisite fees. The instant reissue application is a reissue application of U.S. Patent No. 9,654,330 ("the '330 Patent").

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

Remarks begin on page 10 of this paper.

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Amendments to the Claims

1. (Amended) A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream,

wherein the first protocol, the second protocol, and the third protocol are all different.

2. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

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the gateway providing to the first terminal at least part of the second multimedia session information.

3. (Original) The method according to claim 1, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. (Original) The method according to claim 4, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. (Original) The method according to claim 5, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

7. (Canceled)

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8. (Original) The method of claim 1, wherein the first multimedia stream is the second multimedia stream.

9. (Original) The method of claim 1, wherein the first protocol is a peer-to-peer protocol.

10. (Amended) The method of claim 1, wherein the third protocol is a client-server protocol, and wherein the second [receiving] terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

11. (Original) The method of claim 1, wherein the trigger comprises a network address of the gateway.

12. (Original) The method of claim 11, wherein the network address is a URI or a URI reference.

13. (Canceled)

14. (Canceled)

15. (Original) The method of claim 1, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

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16. (Amended) An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal,

wherein the first protocol, the second protocol, and the third protocol are all different.

17. (Amended) A gateway comprising:

a communication interface; and

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memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, wherein the third protocol is different from the first protocol, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates,

wherein the first protocol, the second protocol, and the third protocol are all different.

18. (Twice amended) The gateway of claim 17, wherein the gateway is further configured to connect to [a] the first terminal supporting [a] the first protocol and to [a] the second terminal supporting [a] the second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

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wherein, in relation to the first protocol, the first terminal is an originating user-side SIP client[of a user at a user side],

wherein the gateway acts as a terminating SIP client,

wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from [the] [user] the first terminal and to provide the first terminal with multimedia session information,

wherein, in relation to the second protocol, the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user, and

[wherein the second terminal uses RTSP for session control, and]

wherein the gateway is further configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. (Amended) The gateway of claim 17, wherein the gateway is further configured to transmit a notification message to the second terminal in response to an invitation of the first terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. (Amended) The gateway of claim 17, wherein the gateway is [embedded] further configured to operate in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), [wherein the third protocol is Real Time Streaming Protocol (RTSP), the IMS network architecture comprising a service-control-function

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component and a media-function component,]wherein [the] memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by [the] a service-control-function component within the IMS network architecture;

triggering the second terminal is controlled by [the] a service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by [the] a media-function component within the IMS network architecture.

21. (Amended) The gateway of claim 17, wherein the gateway is further configured to associate the first multimedia session information and the second multimedia session information with each other.

22. (Original) The gateway of claim 17, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

23. (New-amended) A terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that, when executed by the computing device, causes the terminal to carry out operations including:

- using a first protocol to exchange first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information sets

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up a first media stream from the terminal, and wherein the first multimedia session information includes a type of media; and

- transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream.

24. (New-withdrawn) The terminal of claim 23, wherein the identifier is a closed user group ID and the second terminal is part of a closed user group identified by this closed user group ID.

25. (New-withdrawn) The terminal of claim 24, wherein the closed user group identified by the closed user group ID contains a plurality of community subscribers and the closed user group ID is configured for being resolved by the gateway into a plurality of subscriber terminal addresses, enabling the gateway to transmit a plurality of triggers to the plurality of community subscribers notifying them of the availability of the first stream.

26. (New-withdrawn) The terminal of claim 23, wherein the terminal is configured to transmit a list of subscriber terminal addresses, and the identifier is a subscriber terminal address.

27. (New) The terminal of claim 23, wherein the terminal is one of a personal computer, a PDA, or a mobile phone with multimedia capabilities.

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Remarks

1. Summary of the Final Office Action

In the Final Office Action mailed August 16, 2021 ("Current Final Office Action"), the Examiner objected to claim 10 for an informality. The Examiner rejected claim 27 under 35 U.S.C. § 112 (pre-AIA), first paragraph, as allegedly failing to comply with the written description, and rejected claims 1-6, 8-12, and 15-22 under 35 U.S.C. § 112 (pre-AIA), first paragraph, as allegedly failing to comply with the written description. The Examiner rejected claims 1-6, 8-12, and 15-23, and 27 under U.S.C. § 251 for allegedly introducing new matter into an application for reissue. The Examiner also rejected claims 23 and 27 under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent Application Publication No. 2006/0039367 (Wright), and, alternatively, rejected claims 23 and 27 under pre-AIA 35 U.S.C. § 103(a) as allegedly being obvious over Wright.

2. Examiner Interview Summary

Applicant's undersigned representative held a telephone interview with the Examiner on January 26, 2022 to discuss the claim rejections in the Current Office Action. During the interview, the parties discussed the pending § 112, first paragraph rejections, and the § 102 and § 103 rejections and the cited Wright reference. No agreement was reached regarding allowability of the claims.

An Official Interview Summary mailed February 1, 2022, generally noted that no agreement was reached. Applicant concurs with this aspect of the Official Summary. The Official Summary also stated that Applicant "argued that the inventive concept of 2 different protocols was specified using 'such as'-exemplar language, and was silent on whether or not open-ended phrasing potentially could include non-public / private / proprietary protocol."

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Applicant does not acquiesce, and submits that, in the absence of any context, the meaning of this statement in the Official Summary is at least unclear.

Applicant thanks the Examiner for his time and consideration during the interview.

3. Status of the Claims

Currently pending are claims 1-6, 8-12, and 15-27, of which claims 1, 16, 17, and 23 are independent, and the remainder are dependent.

Applicant has amended claim 18 to recite, *inter alia*, "wherein the gateway is <u>further</u> configured to confirm that the gateway is able to receive a multimedia session from [the] [user] <u>the first terminal</u> and to provide the first terminal with multimedia session information." This amendment replaces the phrase "... from the user ..." with the phrase "... from the first terminal ..." Support for this amendment can be found generally throughout the original '330 Patent, and specifically at least at column 11, lines 47-48, for example.

Applicant has also corrected an improper amendment format in claim 10, replacing a strike-out format denoting deletion with square brackets denoting the same deletion.

No new matter has been added by way of any of the previously-filed amendments.

4. Response to Objection to claim 10

The Examiner objected to claim 10 for an informality. Specifically, the Examiner noted that an improper strike-out format had been used to indicate a deletion, rather than proper square brackets. As noted above, Applicant has corrected this inadvertent formatting error in claim 10. Accordingly, Applicant respectfully request that the Examiner withdraw the objection to claim 10.

5. Response to Rejection under 35 U.S.C. § 112 (pre-AIA), first paragraph

The Examiner rejected claims 1-6, 8-12, and 15-22 under 35 U.S.C. § 112 (pre-AIA),

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first paragraph, as allegedly failing to comply with the written description. Specifically, the Examiner asserted that the limitation "wherein the first protocol, the second protocol, and the third protocol are all different" in each of claims 1, 16, and 17 was not supported in the specification, stating:

> The portions of the specifications to which the Applicant has pointed for support of this limitation only recite SIP and RTSP as such protocols. No additional protocol is recited is this context that is different from these two protocols. This limitation therefore constitutes new matter. (Current Final Office Action, page 4.)

Applicant respectfully submits that the patent does identify three different protocols for the "first," "second," and "third" protocols. Specifically, as the Examiner observed, the "first protocol" may be SIP and "second protocol" may be RTSP, or vice versa. Column 12, lines 48-57 states:

> The trigger may have the form of a trigger message, for example a SIP content indirection request (RFC 4483), *a Short Message Service (SMS) message, or an Unstructured Supplementary Service Data (USSD) message*. Further, the trigger message may be passed to the RTSP client using a proprietary application programming interface (API) or a control interface on the RTSP client, for example a Web Service interface using SOAP, a Remote Procedure Call (RPC), or a telnet interface. Such interfaces may simulate a "manual user input" requesting a multimedia stream. (Emphasis added.)

As such, the original specification clearly identifies at least one combination of three different protocols for the "first," "second," and "third" protocols. Applicant therefore submits that the recitation in each of claims 1, 16, and 17 of "wherein the first protocol, the second protocol, and the third protocol are all different" is supported in the original specification, and respectfully requests that the rejection of these claims (and their respective dependent claims 2-6, 8-12, 15, and 18-22) under 35 U.S.C. § 112 (pre-AIA), first paragraph be withdrawn.

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The Examiner also asserted that:

> Claim 18 further recites "wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from a user and to provide the first terminal with multimedia session information" in lines 9-11. This is incorrect, as the specification only shows that this multimedia session is received from the first terminal, rather than the user. (Current Final Office Action, pages 4-5.)

Applicant respectfully submits that the original patent does support the limitation in question. Specifically, column 6, lines 54-66 states:

> The method according to the embodiment thus allows *the user of a first terminal*, which uses a first multimedia protocol, to stream real-time user-generated content to a second terminal, which uses a second multimedia protocol, where both the first and second terminal act as a client.
> … The gateway confirms that it is able to receive the multimedia session *from the user* and provides first terminal with multimedia session information. (Emphasis added.)

However, in the interest of advancing prosecution, Applicant has amended claim 18, as described above, to replace the phrase "… from the user …" with the phrase "… from the first terminal …" Applicant submits that this language is also fully supported in the original patent, and therefore respectfully requests that the rejection of claim 18 under 35 U.S.C. § 112 (pre-AIA), first paragraph be withdrawn.

6. Response to Rejection under 35 U.S.C. § 251

The Examiner rejected claims 1-6, 8-12, and 15-23, and 27 under U.S.C. § 251 for allegedly "introducing new matter into an application for reissue, for essentially the reasons stated concerning the rejection of claims 1-6, 8-12, and 15-23, and 27 under 35 U.S.C. 112, first paragraph." Applicant refers to the discussion above as to why the rejection of claims 1-6, 8-12, and 15-23, and 27 under 35 U.S.C. § 112, first paragraph should be withdrawn, and submits that for at least the reason that claims 1-6, 8-12, and 15-23, and 27 comply with the written

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description requirement, claims 1-6, 8-12, and 15-23, and 27 also do not introduce new matter. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1-6, 8-12, and 15-23, and 27 under 35 U.S.C. § 251.

7. Response to Rejections under pre-AIA 35 U.S.C. § 102(b)

The Examiner rejected claims 23 and 27 under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by anticipated by Wright. Applicant submits that Wright does not teach each and every limitation set forth either of claims 23 or 27, and that these claims are allowable.

Applicant first notes that the Examiner cited to Figures 5 and 6 and accompanying text in Wright in making the rejection of claim 23 under pre-AIA 35 U.S.C. § 102(b). In particular, the Examiner appeared to make the following alleged mappings (Final Office Action, pages 6-7):

- The "Unicast Source" in Figure 6 in Wright mapped to the "terminal" of claim 23.
- The "RG" in Figure 6 in Wright mapped to the "gateway" of claim 23.
- The "IPSCD" in Figure 6 in Wright mapped to the "second terminal" of claim 23.
- The "SIP OK" message in Figure 6 in Wright mapped to the "trigger" of claim 23.

Even to the extent that the Examiner may not have explicitly stated the above mappings, Applicant submits that they are the only possible mappings that have any basis for logical consistency in a comparison of Figure 6 in Wright with claim 23.

Specifically, the "terminal" of claim 23 is described, *inter alia*, as the source of "a first media stream." In Figure 6 in Wright, the *only* "media stream" source is the "Unicast Source." Therefore, the "Unicast Source" is the *only* element of Figure 6 in Wright that can possibly be mapped to the "terminal" of claim 23.

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The "second terminal" of claim 23 is described, *inter alia*, as being notified "of the availability of the first media stream." As such, the "second terminal" is the intended recipient. In Figure 6 in Wright, the *only* recipient of the "media stream" source is the "IPSCD" (via the "RG"). Therefore, the "IPSCD" is the *only* element of Figure 6 in Wright that can possibly be mapped to the "second terminal" of claim 23.

The Examiner appeared to expressly map the "RG" and the "SIP OK" message in Figure 6 in Wright mapped to the "gateway" and "trigger," respectively, of claim 23.

Without acquiescing to the above mappings, Applicant adopts them for the sake of argument, and submits that with them, it is clear that Wright does not anticipate claim 23.

Wright does not teach "transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream"

Applicant first considers "wherein the identifier is configured for being used by the gateway to identify a second terminal."

The Examiner cited to Figure 6 and accompanying text in Wright as teaching this limitation, stating (Final Office Action, page 6):

> see paragraph 38 and figure 6, the "OK" signal in Step 4 triggers an exchange by showing the availability of a new media stream, also using a protocol such as SIP.

Applicant respectfully submits that the features of Figure 6 in Wright referred to by the Examiner are at least inconsistent with, if not contradictory to, "wherein the identifier is configured for being used by the gateway to identify a second terminal," recited, *inter alia*, in claim 23.

Specifically, with the above mappings, the *only* message from the Unicast Source to the RG that could possibly be mapped to the "identifier" transmitted to the "gateway" is the SIP

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UPDATE message in Step 3 in Wright. However, setting aside whether or not the SIP OK message in Figure 6 qualifies as a trigger, it is clear that the IPSCD initiates the SIP session by sending a SIP INVITE message to the RG in Step 1.

Therefore, the RG device *necessarily knows the identity of the IPSCD before receiving the SIP UPDATE message from the Unicast Source* in Step 3. Accordingly, the SIP UPDATE message *cannot* be an "identifier … configured for being used by the gateway to identify a second terminal." Rather, there is no teaching or suggestion in Wright of the Unicast Source "transmitting an identifier to the" RG "wherein the identifier is configured for being used by the" RG "to identify" the IPSCD.

Applicant next considers "… to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream."

The Examiner cited to paragraph [0055] in Wright as teaching this limitation, stating (Final Office Action, page 7):

> Wright states network-side terminal uses SIP, but that that the consumer device terminal can be implemented engaging in SIP or "other similar communication." See paragraph 55. Therefore, it is disclosed that the first protocol (between the gateway and the terminal) may be different from the second protocol (SIP).

Applicant respectfully submits that *it does not follow* from the mere and one and only mention in Wright of the *possibility* that the IPSCD might be embodied in a "wireless device capable of engaging in a session initiation protocol communication or other similar communication" that ***two different protocols*** may *or even could* be used to implement Wright's purported invention. As Applicant argued in the previous response filed June 29, 2021 (page 16), Wright leans heavily and exclusively on SIP in all embodiments disclosed, and

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provides no teaching, suggestion, or hint, as to how another protocol might be used in his purported invention, let alone how *two different* protocols might be used. Thus, while the possibility of a protocol other than SIP is not necessarily excluded in Wright, *any teaching or suggestion of the use of two different protocols is clearly absent*.

Applicant submits that the absence of any express teaching or suggestion in Wright of actually using two different protocols disqualifies the mere disclosure of an "other similar communication" from anticipating "… a second protocol different from the first protocol …" recited, *inter alia*, in claim 23. Put simply, each and every element set forth in claim 23 is not found expressly or inherently in Wright.

For at least the reasons above, Applicant submits that Wright does anticipate claim 23, and that claim 23 is allowable.

Claim 27 depends from claim 23, and is therefore allowable for at least the reason that it depends from an allowable claim.

8. Response to Rejections under pre-AIA 35 U.S.C. § 103(a)

The Examiner rejected claims 23 and 27 under pre-AIA 35 U.S.C. § 103(a) as allegedly being obvious over Wright. Applicant submits that the teachings of Wright do not logically or reasonably lead to either of claims 23 or 27, and that these claims are allowable.

The Examiner cited to the disclosure in paragraphs [0024] and [0025] of possibly "bi-directional media services (e.g., multimedia conferencing)," and asserted (Current Final Office Action, pages 6-7):

> Alternatively, although Wright discloses bi-directional traffic with respect to the claimed terminal, Wright does not explicitly disclose the protocol used for media originating at the terminal. One skilled in the art would recognize, however, that media transmissions from the terminal to the second terminal could be implemented in the same manner as with media transmissions from the second

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terminal to the first terminal. Therefore it would have been obvious to one of ordinary skill in the art at the time was made to implement the invention of Wright by sending media transmissions in a similar manner in both directions.

Applicant respectfully submits that, as one of ordinary skill in the art would have known, a SIP messaging flow for establishing "bi-directional media services (e.g., multimedia conferencing)" is different from the messaging flow shown in Figure 6. More specifically, the possibility of "bi-directional media services" does not apply to, and does not alter, Figure 6, and in particular, does not alter the mappings discussed above. As such, the possibility of "bi-directional media services" does not provide any way to modify the message flow of Figure 6 that would make up for the failure of Wright's teaching to anticipate claim 23.

In other words, there is no teaching or suggestion in Wright that would logically or reasonably lead to the "Unicast Source" in Wright "transmitting an identifier to the [RG], wherein the identifier is configured for being used by the [RG] to identify a [IPSCD]." And there is no teaching or suggestion in Wright that would logically or reasonably lead to the sending "a [SIP OK message] to the [IPSCD] *using a second protocol different from the first protocol*, notifying the [IPSCD] of the availability of the [media stream]." Even if it were possible to interpret the possibility of "bi-directional media services" as a basis for reversing the roles of the "Unicast Source" and the "IPSCD" in Wright, the failure to map those hypothetically reversed roles to claim 23 would remain the same.

Applicant further submits that in view of Wright's technical endorsement of SIP *alone*, as well as the absence of any discussion or mention of using two different protocols, the disclosure in Wright of "a session initiation protocol communication or other similar communication" does not support the Examiner's conclusion that Wright discloses "that the first protocol (between the gateway and the terminal) may be different from the second protocol (SIP)." Rather, if one of

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ordinary skill in the art would have given any weight at all to this disclosure, it would more likely to have been to possibly consider using the "other similar communication" as the *sole* protocol to implement the communications in Figure 6. Indeed, there is no teaching or suggestion in Wright that two different protocols even *could* be used to successfully implement his purported invention. Thus, in contradiction to M.P.E.P. § 2143.02, there would have been no reasonable expectation of success.

For at least the reasons above, Applicant submits that claim 23 is not obvious over Wright, and that claim 23 is allowable.

Again, claim 27 depends from claim 23, and is therefore allowable for at least the reason that it depends from an allowable claim.

9. Conclusion

For the foregoing reasons, Applicant submits that the claims are allowable. Therefore, Applicant requests favorable reconsideration and allowance of the claims.

Applicant does not acquiesce in any assertion in the office action that is not expressly addressed by these remarks.

Should the Examiner wish to discuss this case with the undersigned, the Examiner is invited to call the undersigned at (312) 913-3353.

Respectfully submitted,

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP

Date: February 4, 2022

By: /David A. Grabelsky/
David A. Grabelsky
Reg. No. 59,208

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/413,052	05/15/2019	Hans Maarten Stokking	10-406-CON-REI	9330

20306 7590 02/01/2022

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EXAMINER	
HENEGHAN, MATTHEW E	

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Applicant-Initiated Interview Summary	**Application No.** 16/413,052	**Applicant(s)** Stokking et al.		
	Examiner MATTHEW E HENEGHAN	**Art Unit** 3992	**AIA (First Inventor to File) Status** No	**Page** 1 of 2

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
MATTHEW E HENEGHAN	Primary Examiner	WebEx/Video Conference
MICHAEL FUELLING	SPE	
MINH DINH NGUYEN	Primary Examiner	
DAVID GRABELSKY	Attorney of Record	

Date of Interview: 26 January 2022

Issues Discussed:

35 U.S.C. 112

The Attorney pointed out support for claims 1, 16, and 17 in the specification in a portion of the specification not previously cited (column 12). The Examiner stated that this would have to be reconsidered in the context of the whole claims. The rejection of claim 18 was discussed, with no agreement reached.

35 U.S.C. 102

The Attorney argued that Wright did not disclose a trigger as recited in 102/103 rejection. Attorney also argued that Wright does not show different protocols being used in Wright. No agreement was reached.

Other

The Attorney argued that the inventive concept of the 2 different protocols was specified using "such as" - exemplar language, and was silent on whether or not that open-ended phrasing potentially could include a non-public / private / proprietary protocol.

☑ Attachment

/M.F/ Supervisory Patent Examiner, Art Unit 3992	/MATTHEW E HENEGHAN/ Primary Examiner, Art Unit 3992

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Applicant-Initiated Interview Summary	**Application No.** 16/413,052	**Applicant(s)** Stokking et al.		
	Examiner MATTHEW E HENEGHAN	**Art Unit** 3992	**AIA (First Inventor to File) Status** No	**Page** **2 of 2**

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

From: Grabelsky, David
To: Heneghan, Matthew
Subject: U.S. Application No. 16/413,052: Agenda for Examiner Interview
Date: Monday, January 24, 2022 11:45:37 AM

CAUTION: This email has originated from a source outside of USPTO. **PLEASE CONSIDER THE SOURCE** before responding, clicking on links, or opening attachments.

Dear Examiner Heneghan,

Thank you for agreeing to a telephone interview on January 26, 2022 at 11:30 am Eastern Time to discuss the Final Office Action in the above application. I am providing a proposed agenda below.

1. Discuss the rejections of claims 1, 16, and 17, and separately claim 18, under 35 U.S.C. § 112 (pre-AIA), first paragraph, as allegedly failing to comply with the written description.

a. Claims 1, 16, and 17

In connection with claims 1, 16, and 17 (and their respective dependent claims), the Final Office Action (page 4) states:

> Claims 1, 16, and 17 each recite "wherein the first protocol, the second protocol, and the third protocol are all different." The portions of the specifications to which the Applicant has pointed for support of this limitation only recite SIP and RTSP as such protocols. No additional protocol is recited is this context that is different from these two protocols. This limitation therefore constitutes new matter.

Applicant respectfully submits that the patent does identify three different protocols for the "first," "second," and "third" protocols. Specifically, as the Final Office Action observes, the "first protocol" may be SIP and "second protocol" may be RTSP, or vice versa. Column 12, lines 48-57 states:

> The trigger may have the form of a trigger message, for example a SIP content indirection request (RFC 4483), a *Short Message Service (SMS) message, or an Unstructured Supplementary Service Data (USSD) message*. Further, the trigger message may be passed to the RTSP client using a proprietary application programming interface (API) or a control interface on the RTSP client, for example a Web Service interface using SOAP, a Remote Procedure Call (RPC), or a telnet interface. Such interfaces may simulate a "manual user input" requesting a multimedia stream. (Emphasis added.)

As such, the original specification clearly identifies at least one combination of three different protocols for the "first," "second," and "third" protocols. Applicant therefore

submits that the recitation in each of claims 1, 16, and 17 of "wherein the first protocol, the second protocol, and the third protocol are all different" is supported in the original specification, and respectfully requests that the rejection of these claims (and their respective dependent claims) under 35 U.S.C. § 112 (pre-AIA), first paragraph be withdrawn.

b. Claim 18

In connection with claim 18, the Final Office Action (pages 4-5) states:

> Claim 18 further recites "wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from a user and to provide the first terminal with multimedia session information" in lines 9-11. This is incorrect, as the specification only shows that this multimedia session is received from the first terminal, rather than the user.

Applicant respectfully submits that the original patent does support the limitation in question. Specifically, column 6, lines 54-66 states:

> The method according to the embodiment thus allows *the user of a first terminal*, which uses a first multimedia protocol, to stream real-time user-generated content to a second terminal, which uses a second multimedia protocol, where both the first and second terminal act as a client.
>
> … The gateway confirms that it is able to receive the multimedia session *from the user* and provides first terminal with multimedia session information (Emphasis added.)

Applicant therefore submits that the recitation in claim 18 of "wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from a user and to provide the first terminal with multimedia session information" is supported in the original specification, and respectfully requests that the rejection of claim 18 under 35 U.S.C. § 112 (pre-AIA), first paragraph be withdrawn.

2. Discuss the rejection of claim 23 under 35 U.S.C. § 102 or § 103 (pre-AIA), and how and why Applicant believes that claim 23 is not anticipated by, or obvious over, Wright.

Applicant first notes that the Final Office Action cites to Figures 5 and 6 and accompanying text in Wright in making the rejections of claim 23 under 35 U.S.C. § 102 or § 103 (pre-AIA). In particular, the Final Office Actions apparently makes the following alleged mappings (Final Office Action, pages 6-7):

- The Final Office Action maps the "Unicast Source" in Figure 6 in Wright to the "terminal" of claim 23.

- The Final Office Action maps the "RG" in Figure 6 in Wright to the "gateway" of

claim 23.

- The Final Office Action maps the "IPSCD" in Figure 6 in Wright to the "second terminal" of claim 23.

- The Final Office Action maps the "SIP OK" message in Figure 6 in Wright to the "trigger" of claim 23.

Without acquiescing to the above mappings, but adopting them for the sake of argument, Applicant submits that Wright does not anticipate, nor render obvious, at least the claim 23 limitation:

> transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream.
>
> **a**. Applicant first considers "wherein the identifier is configured for being used by the gateway to identify a second terminal."

The Final Office Action cites to Figure 6 and accompanying text in Wright as teaching this limitation, stating (Final Office Action, page 6):

> see paragraph 38 and figure 6, the "OK" signal in Step 4 triggers an exchange by showing the availability of a new media stream, also using a protocol such as SIP

Applicant respectfully submits that the features of Figure 6 in Wright referred to in the Final Office Action are at least inconsistent with, if not contradictory to, "wherein the identifier is configured for being used by the gateway to identify a second terminal," recited, *inter alia*, in claim 23.

Specifically, with the above mappings, the only message from the Unicast Source to the RG that could possibly be mapped to the "identifier" transmitted to the "gateway" is the SIP UPDATE message in Step 3 in Wright. However, setting aside whether or not the SIP OK message in Figure 6 qualifies as a trigger, it is clear that the IPSCD *initiates* the SIP session by sending a SIP INVITE message to the RG in Step 1.

Therefore, the RG device *necessarily knows the identity of the IPSCD before receiving the SIP UPDATE message from the Unicast Source* in Step 3. Accordingly, the SIP UPDATE message cannot be an "identifier … configured for being used by the gateway to identify a second terminal." Rather, there is no teaching or suggestion in Wright of the Unicast Source "transmitting an identifier to the" RG "wherein the identifier is configured for being used by the" RG "to identify" the IPSCD.

> **b**. Applicant next considers "… to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal

of the availability of the first stream."

The Final Office Action cites to paragraph [0055] in Wright as teaching this limitation, stating (Final Office Action, page 7):

> Wright states network-side terminal uses SIP, but that that the consumer device terminal can be implemented engaging in SIP or "other similar communication." See paragraph 55. Therefore, it is disclosed that the first protocol (between the gateway and the terminal) may be different from the second protocol (SIP)

Applicant respectfully submits that *it does not follow from* the mere and one and only mention in Wright of the possibility that the IPSCD might be embodied in a "wireless device capable of engaging in a session initiation protocol communication or other similar communication" that ***two different protocols*** may *or even could* be used to implement Wright's purported invention. As Applicant argued in the previous response filed June 29, 2021 (page 16), Wright leans heavily and exclusively on SIP in all embodiments disclosed, and provides no teaching, suggestion, or hint, as to how another protocol might be used in his purported invention. Thus, while the possibility of a protocol other than SIP is not necessarily excluded in Wright, any teaching or suggest of the use of two different protocols is clearly absent.

In view of Wright's technical endorsement of SIP alone, as well as the absence of any discussion or mention of using two *different* protocols, the disclosure in Wright of "a session initiation protocol communication or other similar communication" does not support the conclusion of the Final Office Action that Wright discloses "that the first protocol (between the gateway and the terminal) may be different from the second protocol (SIP)." Rather, if one of ordinary skill in the art would have given any weight at all to this disclosure, it would more likely to have been to possibly consider using the "other similar communication" as the *sole* protocol to implement the communications in Figure 6. Put another way, there is no teaching or suggestion in Wright that two different protocols could even be used to successfully implement his purported invention.

Applicant submits that the absence of any express teaching in Wright of *actually using* two different protocols disqualifies the mere disclosure of an "other similar communication" from *anticipating* "… a second protocol different from the first protocol …" recited, *inter alia*, in claim 23.

Applicant further submits that for at least the reasons above, one of ordinary skill in the art would not have been motivated to consider the disclosure in Wright of an "other similar communication" as a basis for modifying Wright's teachings to use two different protocols.

For at least the reasons above, Applicant submits that claim 23 is not anticipated by, or obvious over, Wright, and claim 23 is allowable.

The summary above is intended to provide context for the interview on January 26,

2022, and is not intended to represent a complete or rigorous argument with respect to how and/or why the rejections of the claims are not supported and/or are overcome by the proposed amendment. Nor is the summary above intended to fully characterize the claims or be limiting with respect to the claims any of Applicant's claims.

I will plan to call you on January 26, 2022 at 11:30 am Eastern Time at a number to be provided by you ahead of time. I look forward to speaking with you, and thank you for your consideration.

Sincerely,

David Grabelsky
Reg. No. 59,208
Tel.: 312-913-3353

Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail.

Scope of E-mail Communications with the Examiner(s): Applicant provides this e-mail communication and any attachment(s) hereto only to facilitate discussion with the Examiner(s). This e-mail communication and any attachment(s) hereto are preliminary in nature and should not be construed as limiting the scope of claims in any way. To the extent that this e-mail communication and/or and any attachment(s) hereto include amendment(s) to the specification, drawings, and/or claims, such amendments should be considered to be draft amendments, which should not be entered by the Examiner(s), and should not be construed as limiting the claims in any way.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/413,052	05/15/2019	Hans Maarten Stokking	10-406-CON-REI	9330

20306 7590 08/16/2021

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EXAMINER	
HENEGHAN, MATTHEW E	

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Office Action Summary	Application No. 16/413,052	Applicant(s) Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	AIA (FITF) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 5/15/19.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-27 is/are pending in the application.

5a) Of the above claim(s) 24-26 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-23 and 27 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☑ Claim(s) 24-26 are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 15 May 2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☑ Certified copies of the priority documents have been received in Application No. 12808665.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. For reissue applications filed on or after September 16, 2012, all references to 35 U.S.C. 251 and 37 CFR 1.172, 1.175, and 3.73 are to the current provisions.

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

4. In response to the previous office action, Applicant has amended claims 1, 10, 16-21, and 23 and cancelled claims 7, 13, and 14. Claims 1-6, 8-12, 15-23, and 27 have been examined. Claims 24-26 stand as withdrawn.

Priority

5. The instant application is a broadening reissue of U.S. Patent Application No. 14/015,765, filed 30 August 2013, now U.S. Patent No. 9,654,330 (hereinafter the '330 patent), issued 16 May 2017. The '330 patent was filed as a continuation of U.S. Patent Application No. 12/808,665, filed 16 June 2010, now U.S. Patent No. 8,549,151 (hereinafter the '151 patent), which was a national stage entry of PCT application PCT/EP08/11014, filed 22 December 2008, which claimed priority to Provisional U.S. Patent Application No. 61/008,664, filed 21 December 2007, and foreign priority to European Patent Application No. EP08002517.4, filed 21 February 2008.

Reissue Applications

6. The application is objected to under 37 CFR 1.172(a) because the person who signed the submission establishing ownership interest is not recognized as an officer of the assignee, and the person who signed it has not been established as being authorized to act on behalf of the assignee. See MPEP § 325.

7. Claim 10 is objected to because of the following informalities: The matter being deleted from the claim should be enclosed in square brackets, rather than crossed out. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-6, 8-12, and 15-22 are rejected under 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for applications subject to pre-AIA 35 U.S.C. 112, the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 16, and 17 each recite "wherein the first protocol, the second protocol, and the third protocol are all different." The portions of the specifications to which the Applicant has pointed for support of this limitation only recite SIP and RTSP as such protocols. No additional protocol is recited is this context that is different from these two protocols. This limitation therefore constitutes new matter.

Claims 2-6, 8-12, 15, and 18-22 are dependent upon base claims 1 and 17 and wholly incorporate the limitation of those claims. They therefore are likewise rejected for containing new matter.

Claim 18 further recites "wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from a user and to provide the first terminal with multimedia session information" in lines 9-11. This is incorrect, as the

specification only shows that this multimedia session is received from the first terminal, rather than the user.

Claim Rejections - 35 USC § 251

The following is a quotation of the relevant portion of 35 U.S.C. 251:

> (a) IN GENERAL.—Whenever any patent is, through error, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming more or less than he had a right to claim in the patent, the Director shall, on the surrender of such patent and the payment of the fee required by law, reissue the patent for the invention disclosed in the original patent, and in accordance with a new and amended application, for the unexpired part of the term of the original patent. No new matter shall be introduced into the application for reissue.

9. Claims 1-6, 8-12, and 15-23, and 27 are rejected under 35 U.S.C. 251 for introducing new matter into an application for reissue, for essentially the reasons stated concerning the rejection of claims 1-6, 8-12, and 15-22 under 35 U.S.C. 112, first paragraph, above.

Claim Rejections - 35 USC § 102 and 103

The following is a quotation of the appropriate paragraphs of pre-AIA 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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 23 and 27 are rejected under pre-AIA 35 U.S.C. 102(b) as anticipated by or, in the alternative, under pre-AIA 35 U.S.C. 103(a) as obvious over U.S. Patent Application Publication No. 2006/0039367 to Wright et al. (hereinafter Wright).

As per claim 23, Wright discloses a terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that, when executed by the computing device, causes the terminal to carry out operations including: using a first protocol to exchange first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the terminal, and wherein the first multimedia session information includes a type of media (a SIP connection between a unicast video source 660 and a residential gateway 520, see paragraph 38 and figures 5,6, Steps 1-5b; since the session may be bi-directional, see paragraphs 24-25, the process equally applies to a connection in the reverse direction, between the terminal and gateway); and transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal (see paragraph 38 and figure 6, the "OK" signal in Step 4 triggers an exchange by showing the availability of a new media stream, also using a protocol such as SIP) using a second protocol

different from the first protocol (Wright states network-side terminal uses SIP, but that that the consumer device terminal can be implemented engaging in SIP or "other similar communication." See paragraph 55. Therefore, it is disclosed that the first protocol (between the gateway and the terminal) may be different from the second protocol (SIP)), notifying the second terminal of the availability of the first stream.

Alternatively, although Wright discloses bi-directional traffic with respect to the claimed terminal, Wright does not explicitly disclose the protocol used for media originating at the terminal. One skilled in the art would recognize, however, that media transmissions from the terminal to the second terminal could be implemented in the same manner as with media transmissions from the second terminal to the first terminal. Therefore it would have been obvious to one of ordinary skill in the art at the time was made to implement the invention of Wright by sending media transmissions in a similar manner in both directions.

Regarding claim 27, the terminal may be a PC, PDA, or mobile phone (see paragraphs 34 and 55).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW E HENEGHAN whose telephone number is (571)272-3834. The examiner can normally be reached on M-F 8-5.

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, Michael Fuelling can be reached on (571)270-1367. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/MATTHEW E HENEGHAN/
Primary Examiner, Art Unit 3992

Conferees:

/MINH DIEU NGUYEN/
Primary Examiner, Art Unit 3992

/M.F/
Supervisory Patent Examiner, Art Unit 3992

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

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

CLAIM		DATE								
Final	Original	01/07/2021	08/10/2021							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
	13	✓	✓							
	14	✓	✓							
	15	✓	✓							
	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	✓	✓							
	20	✓	✓							
	21	✓	✓							
	22	✓	✓							
	23	✓	✓							
	24	N	N							
	25	N	N							
	26	N	N							
	27	✓	✓							

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

CPC - Searched*		
Symbol	Date	Examiner
H0429/08522,06517;H0465/1069,1006,4076,104,103,1016,608	01/07/2021	MH
H04L67/1091;H04L69/08	01/07/2021	MH

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 keyword and class searches	01/07/2021	MH
Review of previous search	08/10/2021	MH

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

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/413,052	Filing Date 05/15/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ 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	06/29/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 24	Minus	** 27	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	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

		(Column 1)		(Column 2)	(Column 3)			
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".	/PATRICIA F LEWIS/
*** 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.**

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

PTO/SB/22 (10-20)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 10-406-CON-REI

Application Number: 16/413,052

Filed: May 15, 2019

For: SYSTEM AND METHOD FOR TRANSMITTING A MULTIMEDIA STREAM

Art Unit: 3992

Examiner: Heneghan, Matthew E

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
☐ One month (37 CFR 1.17(a)(1))	$220	$110	$55	$
☐ Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$
☑ Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$ 1,480
☐ Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐ Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 132490.

☐ Payment made via EFS-Web.

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.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. 37 CFR 3.73(b) statement is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration number 59,208.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/David A. Grabelsky/ — Signature

June 29, 2021 — Date

David A. Grabelsky — Typed or printed name

312-913-3353 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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.

Electronic Patent Application Fee Transmittal

Application Number:	16413052
Filing Date:	15-May-2019
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Filer:	David A. Grabelsky
Attorney Docket Number:	10-406-CON-REI

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	1253	1	1480	1480
Miscellaneous:				
			Total in USD ($)	**1480**

Electronic Acknowledgement Receipt

EFS ID:	43119122
Application Number:	16413052
International Application Number:	
Confirmation Number:	9330
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Customer Number:	20306
Filer:	David A. Grabelsky
Filer Authorized By:	
Attorney Docket Number:	10-406-CON-REI
Receipt Date:	29-JUN-2021
Filing Date:	15-MAY-2019
Time Stamp:	13:34:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1480
RAM confirmation Number	E20216SD34312558
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	Amendment/Req. Reconsideration-After Non-Final Reject	10-406-CON-REI_Response_08Jan21_OA.pdf	193301 26b0796659971c17cd8862348fec82446a1fee2b	no	19
Warnings:					
Information:					
2	Extension of Time	10-406-CON-REI_Petition_for_three-month_Extension_of_Time.pdf	221076 152ac396f0e0963d94efd98bafd3b6f0a3c56220	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30880 e1cb8aba61c9990af8dbabef59e539e2db6fe48f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	445257		

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Docket No. 10-406-CON-REI)

In re the Application Reissue of:	)	
	)	
Hans Maarten Stokking et al.	)	
	)	
Serial No.: 16/413,052	)	
	)	
Filed: May 15, 2019	)	
	)	
U.S. Patent No.: 9,654,330	)	**Examiner: Heneghan, Matthew E**
	)	
Issue: May 16, 2017	)	**Art Unit: 3992**
	)	
For: METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM	)	**Confirmation No.: 9330**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

RESPONSE TO OFFICE ACTION MAILED JANUARY 8, 2021

In response to the Office Action mailed January 8, 2021, Applicant submits the following amendments and remarks. In addition, a Petition for Extension of Time under 37 C.F.R. § 1.136(a) (three-month) is enclosed, along with requisite fees. The instant reissue application is a reissue application of U.S. Patent No. 9,654,330 ("the '330 Patent").

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

Remarks begin on page 10 of this paper.

McDONNELL BOEHNEN
HULBERT & BERGHOFF LLP
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

Amendments to the Claims

1. (Amended) A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream,

wherein the first protocol, the second protocol, and the third protocol are all different.

2. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

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the gateway providing to the first terminal at least part of the second multimedia session information.

3. (Original) The method according to claim 1, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. (Original) The method according to claim 4, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. (Original) The method according to claim 5, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

7. (Canceled)

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8. (Original) The method of claim 1, wherein the first multimedia stream is the second multimedia stream.

9. (Original) The method of claim 1, wherein the first protocol is a peer-to-peer protocol.

10. (Amended) The method of claim 1, wherein the third protocol is a client-server protocol, and wherein the second ~~receiving~~ terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

11. (Original) The method of claim 1, wherein the trigger comprises a network address of the gateway.

12. (Original) The method of claim 11, wherein the network address is a URI or a URI reference.

13. (Canceled)

14. (Canceled)

15. (Original) The method of claim 1, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

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16. (Amended) An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal,

wherein the first protocol, the second protocol, and the third protocol are all different.

17. (Amended) A gateway comprising:

a communication interface; and

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memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, wherein the third protocol is different from the first protocol, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates,

wherein the first protocol, the second protocol, and the third protocol are all different.

18. (Amended) The gateway of claim 17, wherein the gateway is further configured to connect to [a] the first terminal supporting [a] the first protocol and to [a] the second terminal supporting [a] the second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

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wherein, in relation to the first protocol, the first terminal is an originating user-side SIP client[of a user at a user side],

wherein the gateway acts as a terminating SIP client,

wherein the gateway is further configured to confirm that the gateway is able to receive a multimedia session from [the] a user and to provide the first terminal with multimedia session information,

wherein, in relation to the second protocol, the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user, and

[wherein the second terminal uses RTSP for session control, and]

wherein the gateway is further configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. (Amended) The gateway of claim 17, wherein the gateway is further configured to transmit a notification message to the second terminal in response to an invitation of the first terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. (Amended) The gateway of claim 17, wherein the gateway is [embedded] further configured to operate in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), [wherein the third protocol is Real Time Streaming Protocol (RTSP), the IMS network architecture comprising a service-control-function

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component and a media-function component,]wherein [the] memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by [the] a service-control-function component within the IMS network architecture;

triggering the second terminal is controlled by [the] a service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by [the] a media-function component within the IMS network architecture.

21. (Amended) The gateway of claim 17, wherein the gateway is further configured to associate the first multimedia session information and the second multimedia session information with each other.

22. (Original) The gateway of claim 17, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

23. (New-amended) A terminal configured to communicate with a gateway, the terminal comprising a computing device having memory storing software that, when executed by the computing device, causes the terminal to carry out operations including:

- using a first protocol to exchange first multimedia session information between the terminal and the gateway, wherein the exchange of the first multimedia session information sets

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up a first media stream from the terminal, and wherein the first multimedia session information includes a type of media; and

- transmitting an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify a second terminal, in order to be able to send a trigger to the second terminal using a second protocol different from the first protocol, notifying the second terminal of the availability of the first stream.

24. (New-withdrawn) The terminal of claim 23, wherein the identifier is a closed user group ID and the second terminal is part of a closed user group identified by this closed user group ID.

25. (New-withdrawn) The terminal of claim 24, wherein the closed user group identified by the closed user group ID contains a plurality of community subscribers and the closed user group ID is configured for being resolved by the gateway into a plurality of subscriber terminal addresses, enabling the gateway to transmit a plurality of triggers to the plurality of community subscribers notifying them of the availability of the first stream.

26. (New-withdrawn) The terminal of claim 23, wherein the terminal is configured to transmit a list of subscriber terminal addresses, and the identifier is a subscriber terminal address.

27. (New) The terminal of claim 23, wherein the terminal is one of a personal computer, a PDA, or a mobile phone with multimedia capabilities.

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Remarks

1. Summary of the Office Action

In the Office Action mailed January 8, 2021 ("Current Office Action"), the Examiner restricted claim 1-22 and 27, identified by the Examiner as Invention I and being drawn to the setting up of multiple associated multimedia streams between two specific terminals via a gateway, classified in H04L 65/1069, and claims 24-26, identified by the Examiner as Invention II and being drawn to a terminal for transmitting a multimedia multicast via a network gateway, classified in H04N 21/6405. The Examiner identified claim 23 as a linking claim that links identified Inventions I and II. The Examiner objected to claim 23 for an informality. The Examiner rejected claim 27 under 35 U.S.C. § 112 (pre-AIA), first paragraph, as allegedly failing to comply with the written description, and rejected claims 10, 18-23, and 27 under 35 U.S.C. § 112 (pre-AIA), second paragraph, as allegedly being indefinite. The Examiner rejected claim 27 under U.S.C. § 251 for allegedly introducing new matter into an application for reissue. The Examiner also rejected claims 1-23 under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent Application Publication No. 2006/0039367 (Wright).

2. Status of the Claims

Currently pending are claims 1-6, 8-12, and 15-27, of which claims 1, 16, 17, and 23 are independent, and the remainder are dependent. Applicant has canceled claims 7, 13, and 14 without prejudice. Claims 24-26 have been constructively withdrawn by the Examiner. Applicant has amended various claims as follows.

Applicant has amended each of claims 1, 16, and 17 to recite, *inter alia*, "wherein the first protocol, the second protocol, and the third protocol are all different." Support for this amendment can be found generally throughout the '330 Patent, and specifically at least at

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column 3, lines 13-18; column 3, lines 45-54; column 6, lines 8-11; and column 6, lines 59-62, for example.

Applicant has amended has amended claim 10 to replace the term "the second receiving terminal" with "the second terminal."

Applicant has amended claim 18 to ensure consistency of antecedent basis with respect to the base claim, and to introduce clarifying language with respect to usage of the terms "the first terminal" and "the second terminal."

Applicant has amended each of claims 19, 20, and 21 to introduce clarifying language and/or ensure consistency of antecedent basis with respect to their base claim.

Applicant has amended claim 23 to recite, *inter alia*, "the terminal comprising a computing device having memory storing software that, when executed by the computing device, causes the terminal to carry out operations including." This amendment introduces structure for carrying out recited operations. Applicant has further amended claim 23 to describe the "second protocol" as being different from the "first protocol." Support for this amendment can be found generally throughout the '330 Patent, and specifically at least at column 1, lines 49-51; and column 9, lines 40-43, for example.

No new matter has been added by way of any of the above amendments.

3. Response to Restriction Requirement

The Examiner restricted claim 1-22 and 27 as Invention I, and claims 24-26 as Invention II, and constructively elected the claims identified as Invention I. The Examiner also identified claim 23 as a linking claim that links identified Inventions I and II, and stated that "[u]pon the indication of allowability of the linking claim, the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise requiring all

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the limitations of the allowable linking claim(s) will be rejoined and fully examined for patentability in accordance with 37 CFR 1.104." (Current Office Action, page 4.) For reasons discussed below, Applicant submits that claim 23 as amended herein is allowable. Applicant therefore respectfully requests that the Examiner withdraw the restriction and rejoin claims 24-26. Applicant further submits that claims 24-26 are allowable for at least the reason of being dependent from an allowable claim.

4. Response to Objection to claim 23

The Examiner objected to claim 23 for an informality. Specifically, the Examiner asserted that claim 23 "lacks a transitional phrase." (Current Office Action, page 6.) As described above, Applicant has amended claim 23 to include, *inter alia*, structure for carrying out recited operations. The amendment includes at least the transitional phrase "the terminal comprising a computing device having memory storing software …" Accordingly, Applicant respectfully request that the Examiner withdraw the objection to claim 23.

5. Response to Rejection under 35 U.S.C. § 112 (pre-AIA), first paragraph

The Examiner rejected claim 27 under 35 U.S.C. § 112 (pre-AIA), first paragraph, as allegedly failing to comply with the written description. Specifically, the Examiner asserted that claim 27 "designates the claimed terminal as being 'one of a personal computer, a PDA, or a mobile phone'," and that such an instantiation is supported by the original disclosure only for "a terminal that receives a stream, not the terminal that sends the stream, as in the case of base claim 23." (Current Office Action, page 7.) Applicant respectfully disagrees.

The '330 Patent describes, *inter alia*, a "home-located, first terminal" that streams multimedia data generated by a web-cam to a "second terminal" located at a "TV studio." Specifically, column 10, lines 10-44 recite, *inter alia*:

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> FIG. 1 illustrates an exemplary system in which the present invention may be used. *At the home-location a first terminal* 1, e.g. comprised in a set-top box, is connected to display device, e.g. a television.... In one embodiment the multimedia participation of the user may be realized using e.g. a *web-cam 3 connected to the terminal*. The multimedia stream 4 generated by the web-cam is streamed over an IP network 5 *to a second terminal* 6 located at the TV studio...
>
> Such a service requires (i) a home-located user to be able to set up a multimedia session *between the home-located, first terminal 1 and the second terminal 6 located at the studio*....
>
> It is understood that the system at the home location allowing multimedia participation as described in connection with FIG. 1 may be realized in various alternative ways. Those skilled in the art will understand that *the first terminal 1, the display device and the web-cam may be for instance integrated in one device such as a personal computer, a digital assistant (PDA), a mobile telephone with multi-media capabilities*. ... (Emphasis added.)

Thus, the "first terminal" is one that sends a stream "over an IP network" to the "second terminal." The "first terminal" is also exemplified by "a personal computer, a digital assistant (PDA), a mobile telephone with multi-media capabilities." Accordingly, the "terminal" of claim 23 comports with the "instantiation" of the "first terminal" described in the disclosure, and hence claim 27 is supported by the '330 Patent. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claim 27 under 35 U.S.C. § 112 (pre-AIA), first paragraph.

6. Response to Rejections under 35 U.S.C. § 112 (pre-AIA), second paragraph

The Examiner rejected claims 10, 18-23, and 27 under 35 U.S.C. § 112 (pre-AIA), second paragraph, as allegedly being indefinite.

Regarding claim 10, the Examiner noted that the term "the second receiving terminal" lacks antecedent basis. The amendment to claim 10 described above removes the term "receiving" and restores proper antecedent basis. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claim 10 under 35 U.S.C. § 112 (pre-AIA), second paragraph.

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Regarding claim 18, the Examiner asserted the recitation of "the relationship to a user of the first terminal," of "the second terminal" being a client, and of "the second terminal" using RTSP for session control, are "outside of the scope of the claimed gateway, rendering the scope of the claim indefinite." (Current Office Action, pages 7-8.) As described above, Applicant has introduced clarifying language in claim 18 with respect to usage of the terms "the first terminal" and "the second terminal." Specifically, Applicant has removed reference to a "user" and specified the "first terminal" as being a "user-side SIP client." The clarifying language also now describes the characterization of the "first terminal" in relation to the "first protocol." Similarly, the characterization of the "second terminal" as an RTSP client is described in relation to the "second protocol." Applicant submits that because the "gateway" of claim 18 is configured for communicating with the first and second terminals using at least the first and second protocols, the *characterizations* of the first and second terminals in relation to the first and second protocols are within the scope of the recited "gateway." In addition, Applicant has removed the limitation, "wherein the second terminal uses RTSP for session control." In view of the amendments to claim 18 and the discussion above, Applicant respectfully requests that the Examiner withdraw the rejection of claim 18 under 35 U.S.C. § 112 (pre-AIA), second paragraph.

Regarding claim 20, the Examiner asserted the recitation of "the IMS architecture in which the claimed gateway is employed is also outside of the structure of the claimed gateway, rendering the claim indefinite." (Current Office Action, page 8.) As described above, Applicant has introduced clarifying language in claim 20. Specifically, the "gateway" is now described as "configured to operate in an …IMS network architecture … wherein memory of the gateway is distributed in the IMS network architecture." Accordingly, particular components of the IMS

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network architecture in which various operations of the "gateway" are carried out are within the scope of the recited "gateway." In view of the amendments to claim 20 and the discussion above, Applicant respectfully requests that the Examiner withdraw the rejection of claim 20 under 35 U.S.C. § 112 (pre-AIA), second paragraph.

Regarding claims 19, 21, and 22, the Examiner stated that these claims "are dependent upon base claim 17 and wholly incorporate its limitations, rendering them likewise indefinite." (Current Office Action, page 8.) Applicant notes that the Current Office Action contains no rejection of claim 17 under 35 U.S.C. § 112 (pre-AIA), second paragraph, as allegedly being indefinite. Accordingly, Applicant is unclear as to the basis of the rejections of claims 19, 21, and 22 under 35 U.S.C. § 112 (pre-AIA), second paragraph. Absent further clarification of the stated indefiniteness rejection of claims 19, 21, and 22, Application respectfully requests that the Examiner withdraw these rejections.

7. Response to Rejection under 35 U.S.C. § 251

The Examiner rejected claim 27 under U.S.C. § 251 for allegedly "introducing new matter into an application for reissue, for essentially the reasons stated concerning the rejection under 35 U.S.C. 112, first paragraph" of claim 27. Applicant refers to the discussion above as to why the rejection of claim 27 under 35 U.S.C. § 112, first paragraph should be withdrawn, and submits that for at least the reason that claim 27 complies with the written description requirement, claim 27 also does not introduce new matter. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 27 under 35 U.S.C. § 251.

8. Response to Rejections under pre-AIA 35 U.S.C. § 102(b)

The Examiner rejected claims 1-23 under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by Wright. As described above, Applicant has canceled claims 7, 13, and 14,

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rendering the rejection of these claims moot. Applicant submits that Wright does not teach each and every limitation set forth any of claims 1-6, 8-12, and 15-27, and that these claims are allowable. Applicants first address claim 1, then subsequently address claims 2-6, 8-12, and 15-27.

Wright does not teach "a first protocol," "a second protocol," and "a third protocol," "wherein the first protocol, the second protocol, and the third protocol are all different"

The Examiner interpreted the "residential gateway," the "unicast video source," and the "multimedia device" taught by Wright as the "gateway," "first terminal," and "second terminal," respectively, of claim 1. The Examiner also interpreted SIP as taught by Wright as being each of the "first protocol," "second protocol," and "third protocol" of claim 1. (Current Office Action, pages 9-10.)

Indeed, Wright makes much of using only SIP for the operations in Wright that the Examiner interpreted as ones associated with the "first protocol," "second protocol," and "third protocol" of claim 1. For example, in paragraphs [0006] and [0007], Wright teaches:

> Network admission control protocols, then, help determine whether network infrastructure can support a service application. *Problems* with admission control are usually solved by protocols designed specifically for Quality of Service concerns. … *Another problem* is that the RSVP linkage is inefficient when trying to construct admission control across multiple services with different bandwidth requirements and with different service characteristics (such as in the case of unicast and multicast services). *What is needed, then*, is an admission control protocol that can successfully support multiple service applications, such as multicast service applications and unicast service applications.
>
> According to exemplary embodiments, *the needs described above and other are met by utilizing Sessions Initiation Protocol (SIP) for admission control*. … (Emphasis added.)

In contrast, amended claim 1 recites, *inter alia*, "a first protocol," "a second protocol," and "a third protocol," "*wherein the first protocol, the second protocol, and the third protocol*

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are all different" (emphasis added). Applicant submits that on this basis alone, the amendment to claim 1 obviates the anticipation rejection of claim 1 in the Current Office Action.

Further, while the Wright's disclosure in paragraph [0055] that the "IPSCD Management Module [in the multimedia device] may be physically embodied on or in any addressable ... wireless device capable of engaging in a session initiation protocol communication or other similar communication" may imply that a protocol other than SIP may be used by the "multimedia device," there is no teaching or suggestion in Wright of using *three different* protocols for the operations in Wright that the Examiner has interpreted as ones associated with the "first protocol," "second protocol," and "third protocol" of claim 1.

For at least the reasons above, Applicant submits that Wright does not teach at least "a first protocol," "a second protocol," and "a third protocol," "wherein the first protocol, the second protocol, and the third protocol are all different."

Wright does not teach "the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal"

and

"in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates"

The Examiner cited to paragraph [0038] and Figures 5 and 6 in Wright as teaching the above limitations of claim 1, interpreting the SIP OK message (message 4) in Figure 6 as the "trigger" of claim 1. (Current Office Action, pages 9-10.) Applicant respectfully submits that these citations in Wright, and Figure 6 in particular, do not teach at least what the Examiner has attributed to them.

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Specifically, the SIP transactions illustrated in Figure 6 in Wright *begin* with the "IPSCD" (the "multimedia device" interpreted by the Examiner as the "second terminal" of claim 1) sending a SIP INVITE message to the "residential gateway." As is well-known in context of SIP, the INVITE message *is the initiation* of a SIP session. As is also well-known, the SIP OK message (message 4) is a form of acknowledgment indicating that the SIP session initiated by the SIP INVITE message has been successfully established. The SIP OK message is not a trigger to "exchange … the second multimedia session information [that] sets up a second media stream to" the "multimedia device." In Wright, whatever "multimedia session information" is needed in order to set up a media stream to the "multimedia device" has already been exchanged (initiated by the SIP INVITE message) by the time the SIP OK message is received by the "multimedia device." Thus, Wright teaches the "multimedia device" initiates the SIP session *before* it receives *any* communication, trigger or otherwise. And Applicant submits that Wright does not, in any case, teach or suggest any message that may be considered a trigger.

In contrast, claim 1 describes, *inter alia*, "the second terminal" *initiating* "the exchange of the second multimedia session information" with the "gateway" *in response* to receiving the "trigger." Wright clearly teaches something different.

For at least the reasons above, Applicant submits that Wright does anticipate claim 1, and that claim 1 is allowable.

Each of claims 16, 17, and 23 includes, *inter alia*, limitations similar to those of claim 1 that make claim 1 allowable. Applicant therefore submits that each of claims 16, 17, and 23 is allowable for at least the reasons that claim 1 is allowable. Further, Applicant does not concede any of the Examiner's specific assertions with respect to any of claims 16, 17, or 23.

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Each of claims 2-6, 8-12, 15, 18-22, and 27 depends from one or another of claims 1, 17 or 23, all three of which are allowable for at least the reasons above. Applicant therefore submits that each of claims 2-6, 8-12, 15, 18-22, and 27 is allowable for at least the reason that it depends from an allowable claim. Further, Applicant does not concede any of the Examiner's specific assertions with respect to any of claims 2-6, 8-12, 15, 18-22, or 27.

Each of withdrawn claims 24-26 depends from linking claim 23, which is allowable for at least the reasons above. Applicant therefore requests that claims 24-26 be rejoined, and submits that each of claims 24-26 is allowable for at least the reason that it depends from an allowable claim.

9. Conclusion

For the foregoing reasons, Applicant submits that the claims are allowable. Therefore, Applicant requests favorable reconsideration and allowance of the claims.

Applicant does not acquiesce in any assertion in the office action that is not expressly addressed by these remarks.

Should the Examiner wish to discuss this case with the undersigned, the Examiner is invited to call the undersigned at (312) 913-3353.

Respectfully submitted,

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Date: June 29, 2021

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EXAMINER	
HENEGHAN, MATTHEW E	

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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.

Office Action Summary	Application No. 16/413,052	Applicant(s) Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	AIA (FITF) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 5/15/19.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-27 is/are pending in the application.

5a) Of the above claim(s) 24-26 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-23 and 27 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☑ Claim(s) 24-26 are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 15 May 2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☑ Certified copies of the priority documents have been received in Application No. 12808665.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 5/15/19.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. For reissue applications filed on or after September 16, 2012, all references to 35 U.S.C. 251 and 37 CFR 1.172, 1.175, and 3.73 are to the current provisions.

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

4. In a preliminary amendment, Applicant has added claims 23-27. Claims 24-26 are withdrawn for the reasons stated below. Claims 1-23 and 27 have been examined.

Priority

5. The instant application is a broadening reissue of U.S. Patent Application No. 14/015,765, filed 30 August 2013, now U.S. Patent No. 9,654,330 (hereinafter the '330

patent), issued 16 May 2017. The '330 patent was filed as a continuation of U.S. Patent Application No. 12/808,665, filed 16 June 2010, now U.S. Patent No. 8,549,151 (hereinafter the '151 patent), which was a national stage entry of PCT application PCT/EP08/11014, filed 22 December 2008, which claimed priority to Provisional U.S. Patent Application No. 61/008,664, filed 21 December 2007, and foreign priority to European Patent Application No. EP08002517.4, filed 21 February 2008.

Reissue Applications

6. The application is objected to under 37 CFR 1.172(a) because the person who signed the submission establishing ownership interest is not recognized as an officer of the assignee, and the person who signed it has not been established as being authorized to act on behalf of the assignee. See MPEP § 325.

Election/Restrictions

7. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-22 and 27, drawn to the setting up of multiple associated multimedia streams between two specific terminals via a gateway, classified in H04L 65/1069.

II. Claims 24-26, drawn to a terminal for transmitting a multimedia multicast via a network gateway, classified in H04N 21/6405.

8. Claim 23 links inventions I and II. The restriction requirement between the linked inventions is **subject to** the nonallowance of the linking claim, claim 23. Upon the indication of allowability of the linking claim, the restriction requirement as to the linked inventions **shall** be withdrawn and any claim(s) depending from or otherwise requiring all the limitations of the allowable linking claim(s) will be rejoined and fully examined for patentability in accordance with 37 CFR 1.104. **Claims that require all the limitations of an allowable linking claim** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

9. Newly submitted claims 24-26 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as securely broadcasting a video to a specific group of authorized personnel. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR

1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

10. Since applicant has received a patent for the originally presented invention, invention I, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 24-26 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b), MPEP § 821.03, and MPEP § 1450(I).

11. Applicant(s) are advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, the allowable linking claim, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

12. In the event of rejoinder, the requirement for restriction between the product/apparatus claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for

patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product/apparatus are found allowable, an otherwise proper restriction requirement between product/apparatus claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product/apparatus claim will not be rejoined. See MPEP § 821.04. Additionally, in order for rejoinder to occur, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product/apparatus claims. **Failure to do so may result in no rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Claim Objections

13. Claim 23 is objected to because of the following informality: Claim 23 lacks a transitional phrase. It is being presumed that the claim's limitations are being recited in an open-ended manner. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claim 27 is rejected under 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for applications subject to pre-AIA 35 U.S.C. 112, the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim designates the claimed terminal as being "one of a personal computer, a PDA, or a mobile phone." This instantiation is only supported by the original disclosure for a terminal that receives a stream, not the terminal that sends the stream, as is the case in base claim 23. Claim 27 therefore constitutes new matter. For purposes of the instant office action, this claim shall not be further considered.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 10, 18-23, and 27 are rejected under 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Regarding claim 10, the claim recites the limitation "the second receiving terminal" in line 2. There is insufficient antecedent basis for this limitation in the claim. For purposes of the prior art search, it is being presumed that this should be "the second terminal."

Regarding claim 18, the claim recites aspects that are outside of the scope of the claimed gateway, rendering the scope of the claim indefinite, in that it recites the relationship to a user of the first terminal in line 6; that the second terminal is a client is

line 11; and that the second terminal uses RTSP for session control in line 13. For purposes of the prior art search, these limitations are not being considered.

Further regarding claim 20, the IMS architecture in which the claimed gateway is employed is also outside of the structure of the claimed gateway, rendering the claim indefinite. For purposes of the prior art search, this claim stands or falls with base claim 17.

Claims 19, 21, and 22 are dependent upon base claim 17 and wholly incorporate its limitations, rendering them likewise indefinite.

Regarding claims 23 and 27, no structure to the claimed terminal is recited in any of the limitations. The apparatus is merely described in terms of what it does. The scope of the claims is therefore indefinite.

Further regarding claim 23, the claim recites the limitation "the second terminal" in line 8. There is insufficient antecedent basis for this limitation in the claim. For purposes of the prior art search, it is being presumed that this should be “a second terminal.”

Claim Rejections - 35 USC § 251

The following is a quotation of the relevant portion of 35 U.S.C. 251:

(a) IN GENERAL.—Whenever any patent is, through error, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming more or less than he had a right to claim in the patent, the Director shall, on the surrender of such patent and the payment of the fee required by law, reissue the patent for the invention disclosed in the original patent, and in accordance with a new and amended application, for the unexpired part of the term of the original patent. No new matter shall be introduced into the application for reissue.

16. Claim 27 is rejected under 35 U.S.C. 251 for introducing new matter into an application for reissue, for essentially the reasons stated concerning the rejection under 35 U.S.C. 112, first paragraph, above..

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. Claims 1-23 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication No. 2006/0039367 to Wright et al. (hereinafter Wright).

As per claim 1, Wright discloses a method, wherein a gateway (a residential gateway 520, see paragraph 38 and figures 5,6) is capable of communicating with a first terminal (a unicast video source 660) and a second terminal (a multimedia device 100), the method comprising: the gateway or the first terminal using a first protocol (SIP) to exchange first multimedia session information between the first terminal and the gateway (SIP), wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media (a video session is set up from the video source to the multimedia device); the second terminal using a second protocol (also SIP) to receive a trigger provided by the gateway or first terminal (the OK response in Step 4),

wherein the trigger is to initiate an exchange of second multimedia session information (Media Delivery 620) between the gateway and the second terminal (Step 6a), and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream (OK shows that the new content can be supplied); in response to receiving the trigger, the second terminal using a third protocol (yet also SIP) to initiate the exchange of the second multimedia session information between the gateway and the second terminal (Media control 630), wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates (Interactive Media sessions 640, see Steps 12a and 12b) ; and the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream (the second media stream is the first media stream, being relayed via the gateway).

As per claim 2, the gateway may provide some of the second multimedia session information to the gateway during the Media Control 630 phase (see paragraph 38 and figure 6, Step 8).

As per claim 3, the media streams, which incorporate the first multimedia session, in Step 640 (Steps 11a and 11b) are transmitted from the gateway to the second terminal in Steps 12a and 12b.

As per claim 4, Wright discloses that “From the SIP message exchange, the residential gateway 520 has sufficient information to identify the unicast media stream and to associate it with the multimedia device 100 requesting the media.” (see paragraph 38), such as that found in the SIP Invite message (see paragraphs 39 and 40). This constitutes an identifier of the second terminal being received by the gateway.

As per claim 5, address translation to resolve is performed during the SIP Invite, prior to the trigger (see paragraph 40).

Regarding claim 6, the destination address of any message, including the trigger, is modified to the local address of the recipient using NAT/PAT at the gateway.

As per claim 7, Wright states that the second terminal can be implemented engaging in SIP or "other similar communication." (see paragraph 55). Therefore, it is disclosed that the third protocol (between the gateway and the second terminal) may be different from the second protocol (SIP).

As per claim 8, the first and second multimedia streams may be the same stream (see paragraph 38).

As per claim 9, SIP is a peer-to-peer protocol.

Regarding claim 10, SIP is being used as a client-server protocol; since the second terminal is being used strictly as a client in the reference, it is shown that it may lack server capabilities.

As per claim 11, Wright states that the OK response (the trigger) is first sent from the server to the gateway (see paragraph 38). It therefore must comprise the network address of the gateway to ensure proper delivery.

As per claim 12, SIP accepts a URL as a network address. A URL is a type of URI.

As per claims 13 and 14, the first and second protocols are both SIP.

Regarding claim 15, since the multimedia sessions may be from the same stream, the first and second multimedia session informations may be associated with one another (see paragraph 38).

As per claim 16, Wright discloses an article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising: using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media (a SIP connection between a unicast video source 660 and a residential gateway 520, see paragraph 38 and figures 5,6, Steps 1-5b); using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream (see paragraph 38 and figure 6, the "OK" signal in Step 4 triggers an exchange by showing the availability of a new media stream, also using SIP); using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates (Media control 630); and using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal (also using SIP, see Steps 7-12b).

As per claim 17, Wright discloses a gateway comprising: a communication interface; and memory that stores software instructions that, when executed by the gateway, cause the gateway to: (i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media (a SIP connection between a unicast video source 660 and a residential gateway 520, see paragraph 38 and figures 5,6, Steps 1-5b), (ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream (see paragraph 38 and figure 6, the "OK" signal in Step 4 triggers an exchange by showing the availability of a new media stream, also using a protocol such as SIP), and (iii) exchange second multimedia session information with the second terminal, using a third protocol, wherein the third protocol is different from the first protocol, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates (Media control 630).

Regarding claims 18 and 20, Wright discloses that the second protocol may be SIP or "other similar communication." (see paragraphs 55 and 56) and explicitly recites RTSP as such a protocol in the table following paragraph 56. Therefore, it is disclosed that the second protocol (between the gateway and the second terminal) may be RTSP and that the second terminal may be an RTSP client, including the use of RSTP session

control, for which the gateway would be its RSTP server; since the gateway is the endpoint of an SIP session, it constitutes a terminating SIP client; the gateway is configured to confirm that the gateway is able to receive a multimedia session from the user and to provide the first terminal with multimedia session information (see Figure 6, media control 630, specifically steps 7 and 8); and the gateway is configured to inform the second terminal that an incoming session is pending (Figure 6, the "OK" signal).

As per claim 19, the gateway transmits a notification message to the second terminal in response to an invitation of the first terminal, in order active the second terminal to set up a second multimedia session between the second terminal and the gateway (see Figure 6, Step 10, in response to Step 7).

As per claim 21, the first and second multimedia streams may be the same stream (see paragraph 38). Gateways, by definition, transfer sessions between two networks, therefore, the gateway must be configured to associate the first and second session information with one another.

Regarding claim 22, Wright discloses that the second protocol may be SIP or "other similar communication." (see paragraphs 55 and 56) and explicitly recites RTSP as such a protocol in the table following paragraph 56. Therefore, the gateway must support functionality for each protocol.

As per claim 23, Wright discloses a terminal configured to communicate with a gateway, the terminal further configured to: use a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal and wherein the first multimedia session information includes a type of

media (a SIP connection between a unicast video source 660 and a residential gateway 520, see paragraph 38 and figures 5,6, Steps 1-5b); and transmit an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify the second terminal in order to be able to send a trigger to the second terminal notifying the second terminal of the availability of the first stream (see paragraph 38 and figure 6, the "OK" signal in Step 4 triggers an exchange by showing the availability of a new media stream, also using a protocol such as SIP; such a signal requires an identifier designating the destination of such a stream).

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW E HENEGHAN whose telephone number is (571)272-3834. The examiner can normally be reached on M-F 8-5.

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, Michael Fuelling can be reached on (571)270-1367. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/MATTHEW E HENEGHAN/
Primary Examiner, Art Unit 3992

Conferees:

/MINH DIEU NGUYEN/
Primary Examiner, Art Unit 3992
/M.F/
Supervisory Patent Examiner, Art Unit 3992

Notice of References Cited	Application/Control No. 16/413,052	Applicant(s)/Patent Under Reexamination Stokking et al.	
	Examiner MATTHEW E HENEGHAN	Art Unit 3992	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-20060039367-A1	02-2006	Wright; Steven A.	H04L47/806	370/382
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	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	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

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

CLAIM		DATE								
Final	Original	01/07/2021								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
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	19	✓								
	20	✓								
	21	✓								
	22	✓								
	23	✓								
	24	N								
	25	N								
	26	N								
	27	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/413,052	Stokking et al.
	Examiner	Art Unit
	MATTHEW E HENEGHAN	3992

CPC - Searched*		
Symbol	Date	Examiner
H0429/08522,06517;H0465/1069,1006,4076,104,103,1016,608	01/07/2021	MH
H04L67/1091;H04L69/08	01/07/2021	MH

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 keyword and class searches	01/07/2021	MH

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

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	270	(h04l29/08522,06517).cpc.	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 14:16
L2	52,652	(h04l65/1069,1006,4076,104,103,1016,608).cpc.	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 14:17
L3	1,106	(h04l67/1091).cpc.	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 14:18
L4	11,562	(h04l69/08).cpc.	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 14:18
S7	10	"1890463"	US-PGPUB; USPAT; DERWENT	OR	ON	2020/11/18 15:49
S8	2	"20090055878".pn.	US-PGPUB; USPAT; DERWENT	OR	ON	2020/11/18 15:53
S9	1	"9654330".pn.	USPAT	OR	OFF	2020/11/18 16:36
S10	1	"8549151".pn.	USPAT	OR	OFF	2020/11/18 16:36
S35	3,855	sip and rtsp	US-PGPUB; USPAT; DERWENT	OR	OFF	2020/12/16 16:15
S36	317	sip and rtsp and @pd<"20061221"	US-PGPUB;	OR	OFF	2020/12/16 16:15

			USPAT; DERWENT			
S37	94	sip and rtsp and @pd<"20061221" and voip	US-PGPUB; USPAT; DERWENT	OR	OFF	2020/12/16 16:16
S38	449	sip and rtsp and @ad<"20081221" and voip and (multimedia vide$)	US-PGPUB; USPAT; DERWENT	OR	OFF	2020/12/17 12:00
S39	88	sip and rtsp and @pd<"20061221" and voip and (multimedia vide$)	US-PGPUB; USPAT; DERWENT	OR	OFF	2020/12/17 12:01
S40	59	sip and rtsp and @pd<"20061221" and voip and (multimedia vide$) and stream	US-PGPUB; USPAT; DERWENT	OR	OFF	2020/12/17 14:59
S41	53	sip and rtsp and @pd<"20061221" and voip and (multimedia vide$) and stream and gateway	US-PGPUB; USPAT; DERWENT	OR	OFF	2020/12/17 15:01
S42	1,005	(rtsp same gateway) and (group (id identifier))	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 07:49
S43	67	(rtsp same gateway) and (group (id identifier)) and @pd<"20061221"	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 07:50
S44	39	(rtsp same gateway) and (group (id identifier)) and subscrib$ and @pd<"20061221"	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 08:17
S45	39	(rtsp same gateway) and (group (id identifier)) and subscrib$ and server and @pd<"20061221"	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 08:18

S46	0	(rtsp same gateway) and (group adj (id identifier)) and subscrib$ and server and @pd<"20061221"	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 08:19
S47	1	(rtsp same gateway) and (group adj (id identifier)) and @pd<"20061221"	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 08:19
S48	32	(rtsp same gateway) and multicast and @pd<"20061221"	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 08:20
S50	24	(rtsp same gateway) and multicast and (id identifier) and @pd<"20061221"	US-PGPUB; USPAT; DERWENT	OR	OFF	2021/01/07 09:19

1/7/2021 2:20:01 PM
C:\Users\mheneghan\Documents\EAST\Workspaces\Mattapp16413052.wsp

Bibliographic Data

Application No: 16/413,052

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /MATTHEW E HENEGHAN/ [ ]

Examiner's Signature | Initials

Title: Method and System for Transmitting a Multimedia Stream

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/15/2019	709	3992	10-406-CON-REI
RULE			

APPLICANTS

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CONTINUING DATA

This application is a REI of 14015765 08/30/2013 PAT 9654330

14015765 is a CON of 12808665 06/16/2010 PAT 8549151

12808665 is a 371 of PCT/EP2008/011014 12/22/2008

PCT/EP2008/011014 has PRO of 61008644 12/21/2007

FOREIGN APPLICATIONS

EPO EP08002517.4 02/12/2008

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05/16/2019

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FILING FEE RECEIVED

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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-05-15
First Named Inventor	Stokking, Hans Maarten
Art Unit	TBA
Examiner Name	TBA
Attorney Docket Number	10-406-CON-REI

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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	6661785	B1	2003-12-09	Zhang et al.	
	2	7043528	B2	2006-05-09	Schmitt et al.	
	3	7231658	B2	2007-06-12	Kunito et al.	
	4	7286521	B1	2007-10-23	Jackson et al.	
	5	7330283	B2	2008-02-12	Lee et al.	
	6	7639384	B2	2009-12-29	Lee et al.	
	7	7440440	B1	2008-10-21	Abichandani et al.	
	8	7532890	B2	2009-05-12	Davies et al.	

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	9	7539177	B2	2009-05-26	Hoffmann et al.	
	10	7643411	B2	2010-01-05	Andreasen et al.	
	11	7716310	B2	2010-05-11	Foti	
	12	7792025	B2	2010-09-07	Segel et al.	
	13	7953867	B1	2011-05-31	Andreasen	
	14	7961714	B1	2011-06-14	Watson et al.	
	15	8027353	B2	2011-09-27	Damola et al.	
	16	8032589	B2	2011-10-04	Foti	
	17	8046479	B2	2011-10-25	Einarsson et al.	
	18	8098627	B2	2012-01-17	Dutta et al.	
	19	7804848	B2	2010-09-28	Mirtorabi et al.	

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	20	8180338	B1	2012-05-15	Sylvain	
	21	8549151	B2	2013-10-01	Stokking et al.	
	22	8752107	B2	2014-06-10	Astrom	
	23	7724691	B2	2010-05-25	Mela et al.	
	24	6895439	B2	2005-05-17	Isomaki et al.	
	25	7181537	B2	2007-02-20	Costa-Requena et al.	
	26	6154813		2000-11-28	Martin et al.	

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	1	20020004835	A1	2002-01-10	Yarbrough	
	2	20050135366	A1	2005-06-23	Trappeniers et al.	

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	3	20070025301	A1	2007-02-01	Petersson et al.	
	4	20070201484	A1	2007-08-30	Kenrick et al.	
	5	20080092178	A1	2008-04-17	McNamara et al.	
	6	20090100147	A1	2009-04-16	Igarashi	
	7	20090180484	A1	2009-07-16	Igarashi	
	8	20090193469	A1	2009-07-30	Igarashi	
	9	20090235317	A1	2009-09-17	Igarashi	
	10	20090307307	A1	2009-12-10	Igarashi	
	11	20090313376	A1	2009-12-17	Cedervall et al.	
	12	20100005177	A1	2010-01-07	Cagenius	
	13	20100005501	A1	2010-01-07	Stokking et al.	

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	14	20110209188	A1	2011-08-25	Petersson et al.	
	15	20060128376	A1	2016-06-15	Alexis	
	16	20060291472	A1	2006-12-28	Guo et al.	
	17	20090217337	A1	2009-08-27	Astrom	
	18	20090190603	A1	2009-07-30	Damola et al.	
	19	20070177616	A1	2007-08-02	Jabri et al.	
	20	20050141542	A1	2005-06-30	Handekyn et al.	
	21	20030177251	A1	2003-09-18	Suzuki et al.	
	22	20070174401	A1	2007-07-26	Chu et al.	
	23	20050141541	A1	2005-06-30	Cuny et al.	
	24	20030154246	A1	2003-08-14	Ollikainen	

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	1	2007101473	WO	A1	2007-09-13	Telefonaktiebolaget LM Ericsson		
	2	2007140834	WO	A1				
	3	2007140812	WO	A1	2007-12-13	Telefonaktiebolaget LM Ericsson		
	4	1890463	EP	A1	2008-02-20	Comverse, Ltd.		

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NON-PATENT LITERATURE DOCUMENTS Remove

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	Schulzrinne, H. et al., "Real Time Streaming Protocol 2.0 (RTSP)", MMUSIC Working Group, Internet-Draft, November 19 , 2007, draft-ietf-mmusic-rfc2326bis-16. txt.	
	2	Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IMS-based IPTV stage 3 specification; ETSI TS 183 063 V2.1.0 (2008-06).	
	3	Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Dedicated IPTV subsystem stage 3 specification; ETSI TS 183 064 V2.1.1 (2008-10).	

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	Attorney Docket Number	10-406-CON-REI

	4	Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IPTV Architecture; Dedicated subsystem for IPTV functions; ETSI TS 182 028 V2.0.0 (2008-01).	
	5	Meng Guo; Ammar, M.H.; Zegura, E.W. "A Vehicle-to-Vehicle Live Video Streaming Architecture,"Pervasive Computing and Communications, 2005. PerCom 2005. Third IEEE International Conference on 08-12 March 2005 Page(s):171 - 180.	
	6	Schulzrinne, H. et al., RFC 2326: Real Time Streaming Protocol (RTSP), April 1998, IETF, Pages 1-92.	
	7	ETSI, "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); IPTV Architecture; IPTV Functions Supported by the IMS Subsystem", ETSI TS 182 027 V2.0.0 (2008), pp. 1-57.	
	8	3rd Generation Partnership Project, 3GPP TS 26.237 V8.0.0 (2008-12), "IMS based PSS and MBMS User Service" Protocols (Release 8), 2008.	
	9	Schulzrinne, H. et al., RFC 3550: RTP: A Transport Protocol for Real-Time Applications, July 2003, IETF.	
	10	Rosenberg, J. et al., RFC 3261: SIP: Session Initiation Protocol, June 2002, IETF.	
	11	Handley, M. et al. RFC 4566: SOP: Session Description Protocol, July 2006, IETF.	
	12	Recommendation ITU-T H.248.1, Gateway control protocol: Version 3, 2013.	
	13	Rosenberg, J., "Voice on the Net and the IETF" Lucent Technologies, VoN and IETF: Iband98, Nov. 1998.	
	14	Singh, K and Schulzrinne, H., "Unified Messaging using SIP and RTSP" IP Telecom ServicesWorkshop, Sept 2000, Atlanta, Georgia.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.E.H/

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	15	Wikipedia entry, "Session Initiation Protocol" 2007, at http://en.wikipedia.org/wiki/Session_Initiation_Protocol.	
	16	Wikipedia entry, "Session Description Protocol" 2007, at http://en.wikipedia.org/wiki/Session_Description_Protocol.	
	17	Wikipedia entry, "Real-time Transport Protocol" 2007, at http://en.wikipedia.org/wiki/Real-time Transport Protocol.	
	18	Wikipedia entry, "Real Time Streaming Protocol" 2007, at http://en.wikipedia.org/wiki/Real Time Streaming Protocol.	
	19	Ericpol Telecom, SIP-RTSP Gateway, Marketing Webpage, 2007, at http:/fwww.ericpol.pl/index.php/en/network_migration/sip_rtsp_gateway/.	
	20	Ericpol i-Evolution, "Network Migration & Combinatorial Services" Marketing Whitepaper, 2004.	
	21	Burger, E., "A Mechanism for Content Indirection in Session Initiation Protocol (SIP) Messages", Network Working Group, Request for Comments 4483, www.rfc-editor.org/rfc/rfc4483.txt, May 2006.	
	22	International Search Report and Written Opinion, PCT International Application NO. PCT/EP2008/011014 dated December 22,2008.	
	23	European Extended Search Report, European Patent Application No. 08002517.4 dated July 4, 2008.	
	24	Fresa, A. et aL, "A Testbed for Experimentation of Innovative Services in the B3G Framework", Testbeds and Research Infrastructures for the Development of Networks and Communities, February 23-25, 2005, pp. 110-119.	
	25	Whitehead, S. et aL, "An Evaluation of Session Initiation Protocol (SIP) for Use in Streaming Media Applications", Standard-Working-Draft, Internet Engineering Task Force, IETF, No.2, October 22, 2006, whole document.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.E.H/

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	26	Friedrich, 0. et aL, "Next Generation IPTV Services for an Extended IMS Architecture", Autonomous Decentralized Systems, 2007, Eight International Symposium on IEEE, March 1, 2007, 6 pages.
	27	Takei, Kentaro et aL, "Design of Gateway System Between Different Signaling Protocols of the Multimedia Session on the Internet", Information Networking, 2001, Proceedings 15th International Conference, pp. 297-302.
	28	Singh, K. et al, "Interworking Between SIP/SDP and H.323", Internet Engineering Task Force Internet Draft, January 2000, pp. 1-39.
	29	Khan, S. et aL, "Experiences with Blending HTTP, RTSP, and IMS", IEEE Communications Magazine IEEE USA, VoL 45, No.3, March 2007, pp. 122-128.
	30	Bodzinga, Anne et al, "Interworking IPTV Services with IMS", Telecommunications Network Strategy and Planning Symposium, November 2006, pp. 1-5.
	31	Anonymous, "MoFu IV AS Interactive Video Applicatino Server", Whitepaper, Mobilfuture, [Online], December 2006, pp. 1-21, http:f/mobilfuture.kei.pl/files/MoFu_IVAS_whitepaper_v1.0.pdf.
	32	Weldon, "IMS and IPTV, Perfect Together", Internet Citation [online], January 17, 2006, http:f/ipcommunications. tmcnetcom/hot-topics/ims/articles/280-ims-iptv-perfect-together. htm, pp. 1-4.
	33	Singh, Kundan et aL, "Interworking Between SIP/SOP and H.323", IP Telecom Services Workshop, September 2000, whole document.
	34	GSM Association Official Document IR.74, "Video Share Interoperability Specification 1.2" 11th September 2008, pp.1-18.

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EXAMINER SIGNATURE

Examiner Signature	/MATTHEW E HENEGHAN/	Date Considered	11/17/2020

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

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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	/David A. Grabelsky/	Date (YYYY-MM-DD)	2019-05-15
Name/Print	David A. Grabelsky	Registration Number	59208

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Reissue Serial No. 16/413,052

To: Examiner Location: CRU Art Unit: 3992 Date: 05/28/2019	From: Renee Preston Location: CRU 3999 REM 4C75 Phone: (571) 272-1607 Renee.preston@uspto.gov

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Litigation found

Status	Description	Court	Docket Number
Closed	Koninklijke Kpn N.V. V. Tcl Corporation Et Al	US-DIS-DED	1:18cv928

References Cited Items (51)

Title	Date	Type
1. METHOD AND APPARATUSES FOR ESTABLISHING A SESSION BETWEEN A CLIENT TERMINAL AND A MEDIA SUPPLY SYSTEM TO TRANSPORT A UNICAST MEDIA STREAM OVER AN IP N... Out Of Plan US PAT APP 20090313376	Jun 02, 2006	Patents
2. METHOD AND SYSTEM FOR RATE CONTROL SERVICE IN A NETWORK Out Of Plan US PAT APP 20070025301	Nov 18, 2003	Patents
3. METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM Out Of Plan US PAT APP 20110010459	Dec 22, 2008	Patents
4. IP UNICAST STREAMING SERVICE DELIVERY Out Of Plan US PAT APP 20100005177	Sep 05, 2006	Patents
5. INTERACTIVE MULTIMEDIA EXCHANGE ARCHITECTURE AND SERVICES Out Of Plan US PAT APP 20070177616	Jan 12, 2007	Patents
6. METHOD AND APPARATUS FOR PROVIDING INTERACTIVE MEDIA DURING COMMUNICATION IN CHANNEL-BASED MEDIA TELECOMMUNICATION PROTOCOLS Out Of Plan US PAT APP 20070201484	Jul 26, 2006	Patents
7. GENERATING A STREAM COMPRISING SYNCHRONIZED CONTENT Out Of Plan US PAT APP 20100005501	Jul 02, 2009	Patents
8. IP MEDIA STREAMING SERVICE DELIVERY Out Of Plan US PAT APP 20110209188	Dec 07, 2007	Patents
9. STREAMING VIDEO Out Of Plan US PAT APP 20080092178	Oct 11, 2006	Patents
10. INFORMATION PROCESSING APPARATUS, INFORMATION PROCESSING METHOD, AND COMPUTER PROGRAM Out Of Plan US PAT APP 20090100147	Mar 07, 2007	Patents
11. INFORMATION PROCESSING APPARATUS, INFORMATION PROCESSING METHOD, AND COMPUTER PROGRAM Out Of Plan US PAT APP 20090180484	Mar 07, 2007	Patents
12. IMS SERVICE PROXY IN HIGA Out Of Plan US PAT APP 20090190603	Mar 21, 2007	Patents
13. MESSAGE QUEUE SERVER SYSTEM Out Of Plan US PAT APP 20020004835	Jun 01, 2001	Patents
14. INFORMATION PROCESSING APPARATUS AND INFORMATION PROCESSING METHOD, AND COMPUTER PROGRAM Out Of Plan US PAT APP 20090193469	Mar 07, 2007	Patents
15. INTERACTIVE DIGITAL TELEVISION BROADCAST SYSTEM Out Of Plan US PAT APP 20050135366	Dec 15, 2004	Patents
16. INFORMATION PROCESSING APPARATUS, INFORMATION PROCESSING METHOD, AND COMPUTER PROGRAM Out Of Plan US PAT APP 20090235317	Mar 07, 2007	Patents
17. PERSONNALIZATION MODULE FOR INTERACTIVE DIGITAL TELEVISION SYSTEM Out Of Plan US PAT APP 20050141542	Nov 19, 2004	Patents

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18. CONTENT PROVIDING SYSTEM, INFORMATION PROCESSING APPARATUS, INFORMATION PROCESSING METHOD, AND COMPUTER PROGRAM Out Of Plan US PAT APP 20090307307	Mar 07, 2007	Patents
19. COMMUNICATION SYSTEMS AND METHODS Out Of Plan US PAT APP 20060128376	Jul 01, 2005	Patents
20. METHOD AND APPARATUS FOR UTILIZING NETWORK SERVICES IN A MANNER SUBSTANTIALLY TRANSPARENT TO SERVICE ENDPOINTS Out Of Plan US PAT APP 20060291472	Jun 24, 2005	Patents
21. METHOD AND SYSTEM FOR DEVICE-BASED CALL PARK AND PICK-UP Out Of Plan US PAT 7440440	Dec 12, 2003	Patents
22. CONTENT-BASED NOTIFICATION AND USER- TRANSPARENT PULL OPERATION FOR SIMULATED PUSH TRANSMISSION OF WIRELESS EMAIL Out Of Plan US PAT 7532890	Nov 07, 2005	Patents
23. CALL HOLD/TERMINAL PORTABILITY IN H.323/ISUP-BICC-SIP NETWORKS Out Of Plan US PAT 7539177	Apr 01, 2003	Patents
24. METHOD FOR CONTROLLING ERROR OF INTERNET FAX DATA Out Of Plan US PAT 7639384	Dec 11, 2007	Patents
25. NETWORK-TRIGGERED QUALITY OF SERVICE (QOS) RESERVATION Out Of Plan US PAT 7643411	Mar 06, 2007	Patents
26. AUTHENTICATION AND PROTECTION FOR IP APPLICATION PROTOCOLS BASED ON 3GPP IMS PROCEDURES Out Of Plan US PAT 6895439	Mar 31, 2003	Patents
27. METHOD AND INTERNET PROTOCOL TELEVISION (IPTV) CONTENT MANAGER SERVER FOR IPTV SERVICING Out Of Plan US PAT 7716310	Dec 21, 2007	Patents
28. STREAMING MEDIA Out Of Plan US PAT 7724691	Jan 31, 2003	Patents
29. MULTI-SERVICE SESSION ADMISSION CONTROL Out Of Plan US PAT 7792025	Oct 11, 2005	Patents
30. METHOD AND APPARATUS FOR ROUTING WIRELESS VILLAGE MESSAGES IN AN INTERNET PROTOCOL MULTIMEDIA SUBSYSTEM Out Of Plan US PAT 7181537	Jan 03, 2003	Patents
31. DATA TRANSMISSION SYSTEM, APPARATUS AND METHOD FOR PROCESSING INFORMATION, APPARATUS AND METHOD FOR RELAYING DATA, STORAGE MEDIUM, AND PROGRAM Out Of Plan US PAT 7231658	Dec 05, 2002	Patents
32. SETTING A FORWARDING ADDRESS IN AN INTERNET PROTOCOL VERSION 6 (IPV6) ROUTING PROTOCOL DOMAIN AT A BOUNDARY WITH A DIFFERENT ROUTING PROTOCOL DOMAIN Out Of Plan US PAT 7804848	Feb 28, 2007	Patents
33. LOCALIZED VOICE OVER INTERNET PROTOCOL COMMUNICATION Out Of Plan US PAT 7286521	Oct 13, 2000	Patents
34. SESSION DESCRIPTION PROTOCOL (SDP) CAPABILITY NEGOTIATION Out Of Plan US PAT 7953867	Jan 29, 2007	Patents

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Title	Date	Type
35. METHOD FOR CONTROLLING ERROR OF INTERNET FAX DATA Out Of Plan US PAT 7330283	Aug 29, 2002	Patents
36. PROVIDING PACKET-BASED MULTIMEDIA SERVICES VIA A CIRCUIT BEARER Out Of Plan US PAT 7961714	May 11, 2004	Patents
37. METHOD AND APPARATUS FOR PROVIDING INTERNET CALL WAITING WITH VOICE OVER INTERNET PROTOCOL Out Of Plan US PAT 6661785	Oct 12, 1999	Patents
38. SYSTEMS AND METHODS FOR CONNECTING VIDEO CONFERENCING TO A DISTRIBUTED NETWORK Out Of Plan US PAT 7043528	Aug 12, 2005	Patents
39. IMS SERVICE PROXY IN HIGA Out Of Plan US PAT 8027353	Mar 21, 2007	Patents
40. METHODS AND SYSTEMS FOR RESUMING, TRANSFERRING OR COPYING A MULTIMEDIA SESSION Out Of Plan US PAT 8032589	Jan 16, 2009	Patents
41. MEDIA CHANNEL MANAGEMENT Out Of Plan US PAT 8046479	Jul 11, 2007	Patents
42. METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM Out Of Plan US PAT 8549151	Dec 22, 2008	Patents
43. SELECTIVE CALL ANCHORING IN A MULTIMEDIA SUBSYSTEM Out Of Plan US PAT 8180338	Jun 14, 2006	Patents
44. TIME-SHIFTING AND CHASE-PLAY FOR AN IPTV SYSTEM Out Of Plan US PAT APP 20090217337	Mar 07, 2006	Patents
45. TIME-SHIFTING AND CHASE-PLAY FOR AN IPTV SYSTEM Out Of Plan US PAT 8752107	Mar 07, 2006	Patents
46. P-CSCF FAST HANDOFF FOR IMS/MMS ARCHITECTURE Out Of Plan US PAT 8098627	Sep 11, 2007	Patents
47. Method and system for transmitting a multimedia stream Out Of Plan EP PAT APP 2091203 A1	Feb 12, 2008	Patents
48. Accessing interactive services over internet Out Of Plan EP PAT APP 1890463 A1	Aug 14, 2007	Patents
49. IMS SERVICE PROXY IN HIGA Out Of Plan WO 2007140834 A1	Mar 21, 2007	Patents
50. METHOD AND APPARATUSES FOR ESTABLISHING A SESSION BETWEEN A CLIENT TERMINAL AND A MEDIA SUPPLY SYSTEM TO TRANSPORT A UNICAST MEDIA STREAM OVER AN IP N... Out Of Plan WO 2007140812 A1	Jun 02, 2006	Patents
51. METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM Out Of Plan WO 2009080345 A1	Dec 22, 2008	Patents

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Citing References (4)

Treatment	Title	Date	Type	Depth	Headnote(s)
Cited by	1. Managing associated sessions in a network LitAlert P2018-26-05	June 22, 2018	Lit Alert		—
—	2. COMMUNICATION METHOD OF MULTIMEDIA STREAM BETWEEN HOME AND STUDIO TERMINALS, INVOLVES INITIATING MULTIMEDIA SESSION INFORMATION EXCHANGE BETWEEN STUDIO TERMINAL AND PRESET GATEWAY, IN RESPONSE TO TRIGGER PROVISION TO STUDIO TERMINAL Out Of Plan DWPI 2009-L03105	Dec. 21, 2007	DWPI	—	—
—	3. RF 039582/0478 Out Of Plan	Aug. 30, 2016	Assignments	—	—
—	4. RF 031143/0824 Out Of Plan	Sep. 05, 2013	Assignments	—	—

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Job Number: 89708597

Documents (2)

1. *US Patent Issued to Koninklijke KPN on May 16 for "Method and system for transmitting a multimedia stream" (Dutch Inventor)*

   Client/Matter: -None-
   Search Terms: 9654330 or 9,654,330
   Search Type: Terms and Connectors
   Narrowed by:

Content Type	Narrowed by
News	-None-

2. *United States Patent for Method and System for Transmitting a Multimedia Stream Issued to Koninklijke KPN*

   Client/Matter: -None-
   Search Terms: 9654330 or 9,654,330
   Search Type: Terms and Connectors
   Narrowed by:

Content Type	Narrowed by
News	-None-

US Patent Issued to Koninklijke KPN on May 16 for "Method and system for transmitting a multimedia stream" (Dutch Inventor)

US Fed News

May 18, 2017 Thursday 1:38 PM EST

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Length: 295 words

Dateline: ALEXANDRIA, Va.

Body

ALEXANDRIA, Va., May 18 -- United States Patent no. ***9,654,330***, issued on May 16, was assigned to Koninklijke KPN N.V. (The Hague, Netherlands).

"Method and system for transmitting a multimedia stream" was invented by Koninklijke KPN N.V. (The Hague, Netherlands). According to the abstract* released by the U.S. Patent & Trademark Office: "A method is described for transmitting a multimedia stream from a first terminal and receiving an associated second multimedia stream at a second terminal. The first and second terminal are connected to at least one gateway for enabling the transmission of the stream and the receiving of the associated stream. The method comprises: -initiating the exchange of first multimedia session information between the first terminal and the gateway, using a first protocol; -providing a trigger to the second terminal to initiate the exchange of second multimedia session information between the second terminal and the gateway, using a second protocol; -in response to providing the trigger, the second terminal initiating the exchange of second multimedia session information between the second terminal and the gateway, using a third protocol; -transmitting a first multimedia stream from the first terminal and receiving a second associated multimedia stream at the second terminal." The patent was filed on Aug. 30, 2013, under Application No. 14/015,765. *For further information, including images, charts and tables, please visit:

http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=9654330&OS=9654330&RS=9654330 For any query with respect to this article or any other content requirement, please contact Editor at *hisyndication@hindustantimes.com*

Load-Date: May 18, 2017

End of Document

United States Patent for Method and System for Transmitting a Multimedia Stream Issued to Koninklijke KPN

Global IP News. Software Patent News

May 17, 2017 Wednesday

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Length: 373 words

Dateline: New Delhi

Body

FULL TEXT

Publication Name: Software Patent News**Patent Application Number:** 14/015,765**Patent Publication Number:** ***9,654,330*****International Patent Classification Codes:** H04L 29/06517 (20130101), H04L 29/08522 (20130101), H04L 65/103 (20130101), H04L 65/104 (20130101), H04L 65/1006 (20130101), H04L 65/1069 (20130101), H04L 65/4076 (20130101), H04L 69/08 (20130101), H04L 65/1016 (20130101), H04L 65/608 (20130101)**Patent Status:** Granted

Alexandria, May 17 -- United States Patent for method and system for transmitting a multimedia stream has been issued to Koninklijke KPN. This invention was developed by Stokking Hans Maarten, Van Deventer Mattijs Oskar, Walraven Fabian Arthur and Niamut Omar Aziz. The patent application number is 14/015,765. The International Patent Classification codes are G06F 15/16 (20060101), H04L 29/08 (20060101) and H04L 29/06 (20060101). Cooperative Patent Classification codes are H04L 29/06517 (20130101), H04L 29/08522 (20130101), H04L 65/103 (20130101), H04L 65/104 (20130101), H04L 65/1006 (20130101), H04L 65/1069 (20130101), H04L 65/4076 (20130101), H04L 69/08 (20130101), H04L 65/1016 (20130101) and H04L 65/608 (20130101).

The abstract released by U.S. Patent and Trademark Office states, "A method is described for transmitting a multimedia stream from a first terminal and receiving an associated second multimedia stream at a second terminal. The first and second terminal are connected to at least one gateway for enabling the transmission of the stream and the receiving of the associated stream. The method comprises: --initiating the exchange of first multimedia session information between the first terminal and the gateway, using a first protocol; --providing a trigger to the second terminal to initiate the exchange of second multimedia session information between the second terminal and the gateway, using a second protocol; --in response to providing the trigger, the second terminal initiating the exchange of second multimedia session information between the second terminal and the gateway, using a third protocol; --transmitting a first multimedia stream from the first terminal and receiving a second associated multimedia stream at the second terminal."

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US District Court Civil Docket

U.S. District - Delaware
(Wilmington)

1:18cv928

Koninklijke Kpn N.V. v. Tcl Corporation et al

This case was retrieved from the court on Tuesday, May 28, 2019

Date Filed: **06/22/2018**
Assigned To: **Judge Leonard P. Stark**
Referred To: **Judge Christopher J. Burke**
Nature of suit: **Patent (830)**
Cause: **Patent Infringement**
Lead Docket: **None**
Other Docket: **1:17cv00082**
1:17cv00083
1:17cv00084
1:17cv00090
1:17cv00091
Jurisdiction: **Federal Question**

Class Code: **CLOSED**
Closed: **01/11/2019**
Statute: **35:271**
Jury Demand: **Plaintiff**
Demand Amount: **$0**
NOS Description: **Patent**

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[Term: 10/02/2018]
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Tct Mobile (Us) Holdings, Inc.
[Term: 10/02/2018]
Defendant

Date	#	Proceeding Text	Source

06/22/2018	1	COMPLAINT FOR PATENT INFRINGEMENT filed with Jury Demand against TCL Communication Technology Holdings Limited, TCL Communication, Inc., TCL Corporation, TCT Mobile (US) Holdings, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc. - Magistrate Consent Notice to Pltf. (Filing fee $ 400, receipt number 0311-2406847.) - filed by Koninklijke KPN N.V. (Attachments: # 1 Exhibit A, # 2 Exhibit B, # 3 Civil Cover Sheet)(crb) (Entered: 06/22/2018)
06/22/2018	2	Notice, Consent and Referral forms re: U.S. Magistrate Judge jurisdiction. (crb) (Entered: 06/22/2018)
06/22/2018	3	Report to the Commissioner of Patents and Trademarks for Patent/Trademark Number(s) US 9,667,669 B2 ;US 9,654,330 B2. (crb) (Entered: 06/22/2018)
06/22/2018		Summons Issued with Magistrate Consent Notice attached as to TCL Communication, Inc. on 6/22/2018; TCT Mobile (US) Holdings, Inc. on 6/22/2018; TCT Mobile (US) Inc. on 6/22/2018; TCT Mobile, Inc. on 6/22/2018. Requesting party or attorney should pick up issued summons at the Help Desk, Room 4209, or call 302-573-6170 and ask the Clerk to mail the summons to them. (crb) (Entered: 06/22/2018)
06/27/2018		Case Assigned to Judge Leonard P. Stark. Please include the initials of the Judge (LPS) after the case number on all documents filed. (rjb) (Entered: 06/27/2018)
06/28/2018	4	MOTION for Pro Hac Vice Appearance of Attorney Alexandra White and Andres C. Healy - filed by Koninklijke KPN N.V.. (Farnan, Brian) (Entered: 06/28/2018)
06/29/2018		SO ORDERED, re 4 MOTION for Pro Hac Vice Appearance of Attorney Alexandra White and Andres C. Healy filed by Koninklijke KPN N.V. Signed by Judge Leonard P. Stark on 6/29/18. (ntl) (Entered: 06/29/2018)
06/29/2018	5	MOTION for Pro Hac Vice Appearance of Attorney Hunter Vance - filed by Koninklijke KPN N.V.. (Farnan, Brian) (Entered: 06/29/2018)
07/02/2018		SO ORDERED, re 5 MOTION for Pro Hac Vice Appearance of Attorney Hunter Vance filed by Koninklijke KPN N.V. Signed by Judge Leonard P. Stark on 7/2/18. (ntl) (Entered: 07/02/2018)
07/02/2018	6	ORAL REFERRAL ORDER: This case will be governed by Judge Stark's Revised Procedures for Managing Patent Cases (see www.ded.uscourts.gov). In accordance with the Revised Procedures, IT IS HEREBY ORDERED that: 1. any and all matters relating to scheduling, including entry of a Scheduling Order, are referred to Magistrate Judge Burke; 2. any and all motions to dismiss, stay, and/or transfer venue, relating to all or any part of the case, whenever such motions may be filed, are referred to Judge Burke for disposition or report and recommendation, to the full extent permitted by the Constitution, statute, and rule; and 3. within seven (7) days of the date of this Referral Order, the plaintiff(s) shall file the Procedures Order, which is found on Judge Stark's website (see www.ded.uscourts.gov). ORDERED by Judge Leonard P. Stark on 7/2/18. (ntl) (Entered: 07/02/2018)
07/05/2018	7	PROPOSED ORDER Proposed Procedures Order re 6 Order Referring Case to Magistrate Judge,,, by Koninklijke KPN N.V.. (Attachments: # 1 Letter to The Honorable Leonard P. Stark)(Farnan, Brian) (Entered: 07/05/2018)
07/05/2018		SO ORDERED D.I. 7 Proposed Procedures Order filed by Koninklijke KPN N.V. Ordered by Judge Christopher J. Burke on 7/5/2018. (dlb) (Entered: 07/05/2018)
07/05/2018		Pro Hac Vice Attorney Alexandra White, Andres C. Healy, Hunter Vance for Koninklijke KPN N.V. added for electronic noticing. Pursuant to Local Rule 83.5 (d)., Delaware counsel shall be the registered users of CM/ECF and shall be required to file all papers. (crb) (Entered: 07/05/2018)
09/11/2018	8	

		WAIVER OF SERVICE returned executed by Koninklijke KPN N.V.: For TCL Communication, Inc. waiver sent on 8/9/2018, answer due 10/9/2018; TCT Mobile (US) Holdings, Inc. waiver sent on 8/9/2018, answer due 10/9/2018; TCT Mobile (US) Inc. waiver sent on 8/9/2018, answer due 10/9/2018; TCT Mobile, Inc. waiver sent on 8/9/2018, answer due 10/9/2018. (Farnan, Michael) (Entered: 09/11/2018)
09/27/2018		Summons Issued with Magistrate Consent Notice attached as to TCL Communication Technology Holdings Limited on 9/27/2018. (sar) (Entered: 09/27/2018)
09/28/2018	9	STIPULATION of Dismissal of Defendants TCL Corporation and TCT Mobile (US) Holdings, Inc. by Koninklijke KPN N.V.. (Farnan, Brian) (Entered: 09/28/2018)
10/02/2018		SO ORDERED, re 9 Stipulation of Dismissal filed by Koninklijke KPN N.V. -- TCL Corporation and TCT Mobile (US) Holdings, Inc. terminated. Signed by Judge Leonard P. Stark on 10/2/18. (ntl) (Entered: 10/02/2018)
10/09/2018	10	MOTION to Dismiss for Failure to State a Claim Upon Which Relief Can Be Granted - filed by TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc.. (Attachments: # 1 Text of Proposed Order)(Phillips, John) (Entered: 10/09/2018)
10/09/2018	11	OPENING BRIEF in Support re 10 MOTION to Dismiss for Failure to State a Claim Upon Which Relief Can Be Granted filed by TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc..Answering Brief/Response due date per Local Rules is 10/23/2018. (Phillips, John) (Entered: 10/09/2018)
10/09/2018	12	Disclosure Statement pursuant to Rule 7.1: identifying Corporate Parent TCT Mobile (US) Holdings Inc. for TCL Communication, Inc., TCT Mobile (US) Inc.; Corporate Parent TCL Communication Technology Holdings, Ltd. for TCT Mobile, Inc. filed by TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc.. (Phillips, John) (Entered: 10/09/2018)
10/09/2018	13	MOTION for Pro Hac Vice Appearance of Attorney Craig S. Summers and Alan G. Laquer - filed by TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc.. (Attachments: # 1 Summers Pro Hac Certification, # 2 Laquer Pro Hac Certification)(Phillips, John) (Entered: 10/09/2018)
10/10/2018		MOTION REFERRED: 10 MOTION to Dismiss for Failure to State a Claim Upon Which Relief Can Be Granted Motion referred to Christopher J. Burke.(dlb) (Entered: 10/10/2018)
10/10/2018		ORAL ORDER : IT IS HEREBY ORDERED that the parties shall meet and confer and discuss, in person and/or by telephone, each of the matters listed on Chief Judge Stark's Case Management Checklist ("Checklist"). Within thirty (30) days from the date of this Order, the parties shall jointly file the following: (i) a copy of the "Checklist" indicating the names of Lead Counsel and Delaware Counsel for each party; (ii) a proposed Scheduling Order (consistent with the Chief Judge Stark's Revised Patent Form Scheduling Order); and (iii) a letter, not to exceed three pages, that contains the following: (a) a description of what this case is about; (b) the parties' positions regarding the disputes in the proposed Scheduling Order, and (c) a list of the three most significant topics (other than Scheduling Order disputes) discussed during the parties' review of the Checklist items, along with a brief description as to what was discussed as to those topics. Thereafter, the Court will schedule a Case Management Conference/Rule 16 Scheduling Conference to be held with Judge Stark and/or Judge Burke. The Checklist and Revised Patent Form Scheduling Order can be found on this Court's website (www.ded.uscourts.gov/judge/chief-judge-leonard-p-stark). Ordered by Judge Christopher J. Burke on 10/10/2018. (dlb) (Entered: 10/10/2018)
10/10/2018	14	NOTICE of Appearance by David A. Bilson on behalf of TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc. (Bilson, David) (Entered: 10/10/2018)

10/10/2018		SO ORDERED D.I. 13 MOTION for Pro Hac Vice Appearance of Attorney Craig S. Summers and Alan G. Laquer filed by TCL Communication, Inc., TCT Mobile, Inc., TCT Mobile (US) Inc. Ordered by Judge Christopher J. Burke on 10/10/2018. (dlb) (Entered: 10/10/2018)
10/10/2018		Pro Hac Vice Attorney Alan G. Laquer for TCL Communication Technology Holdings Limited, TCL Communication, Inc., TCT Mobile (US) Inc., and TCT Mobile, Inc. added for electronic noticing. Pursuant to Local Rule 83.5 (d)., Delaware counsel shall be the registered users of CM/ECF and shall be required to file all papers. (ceg) (Entered: 10/10/2018)
10/11/2018		Pro Hac Vice Attorney Craig S. Summers for TCL Communication, Inc., TCT Mobile (US) Inc., and TCT Mobile, Inc. added for electronic noticing. Pursuant to Local Rule 83.5 (d)., Delaware counsel shall be the registered users of CM/ECF and shall be required to file all papers. (ceg) (Entered: 10/11/2018)
10/11/2018	15	STIPULATION TO EXTEND TIME (i) for Plaintiff to respond to Motion to Dismiss; (ii) for Defendants to file Reply in Support of Motion to Dismiss; (iii) for Defendants to respond to Amended Complaint (if filed) to (i) 11/13/2018; (ii) 12/11/2018; and (iii) 12/18/2018 - filed by Koninklijke KPN N.V.. (Farnan, Michael) (Entered: 10/11/2018)
10/11/2018		SO ORDERED D.I. 15 STIPULATION TO EXTEND TIME (i) for Plaintiff to respond to Motion to Dismiss; (ii) for Defendants to file Reply in Support of Motion to Dismiss; (iii) for Defendants to respond to Amended Complaint (if filed) to (i) 11/13/2018; (ii) 12/11/2018; and (i filed by Koninklijke KPN N.V. Ordered by Judge Christopher J. Burke on 10/11/2018. (dlb) (Entered: 10/11/2018)
10/12/2018	16	Disclosure Statement pursuant to Rule 7.1: identifying Corporate Parent TCT Mobile (US) Holdings Inc. for TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc. filed by TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc.. (Phillips, John) (Entered: 10/12/2018)
11/09/2018	17	STIPULATION TO EXTEND TIME the deadline for jointly filing the materials requested by the Court's October 10, 2018 Oral Order to November 16, 2018 - filed by TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc.. (Phillips, John) (Entered: 11/09/2018)
11/09/2018		SO ORDERED D.I. 17 STIPULATION TO EXTEND TIME the deadline for jointly filing the materials requested by the Court's October 10, 2018 Oral Order to November 16, 2018 filed by TCL Communication, Inc., TCT Mobile, Inc., TCT Mobile (US) Inc. Ordered by Judge Christopher J. Burke on 11/9/2018. (dlb) (Entered: 11/09/2018)
11/13/2018	18	First AMENDED COMPLAINT against TCL Communication Technology Holdings Limited, TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc.- filed by Koninklijke KPN N.V.. (Attachments: # 1 Exhibit A, # 2 Exhibit B, # 3 Exhibit C)(Farnan, Brian) (Entered: 11/13/2018)
11/13/2018	19	Report to the Commissioner of Patents and Trademarks for Patent/Trademark Number(s) US 9,667,669 B2 ;US 9,654,330 B2 ;US 9,014,667 B2 . (Farnan, Brian) (Entered: 11/13/2018)
11/16/2018	20	ORDER Setting Hearing on Sec. 101 motions for 2/8/2019 at 10:00 AM in Courtroom 6B before Judge Leonard P. Stark and Judge Christopher J. Burke. Letter briefs are due 1/18/19. Signed by Judge Leonard P. Stark on 11/16/18. (ntl) (Entered: 11/16/2018)
11/16/2018		Motion No Longer Referred to Judge Burke: 10 MOTION to Dismiss for Failure to State a Claim Upon Which Relief Can Be Granted. (ntl) (Entered: 11/16/2018)
11/16/2018	21	Letter to The Honorable Leonard P. Stark from Brian E. Farnan regarding Scheduling Materials - re Oral Order,,,,,,. (Attachments: # 1 Exhibit A, # 2 Exhibit B, # 3 Exhibit C)(Farnan, Brian) (Entered: 11/16/2018)
11/19/2018		

		Oral Order Setting Case Management/Scheduling Conference: A Case Management/Scheduling Conference is set for 12/3/2018 at 02:00 PM in Courtroom 2A before Judge Christopher J. Burke. Ordered by Judge Christopher J. Burke on 11/19/2018. (dlb) (Entered: 11/19/2018)
11/29/2018	22	STIPULATION TO EXTEND TIME to respond to KPN's First Amended Complaint to December 18, 2018 - filed by TCL Communication Technology Holdings Limited, TCL Communication, Inc., TCT Mobile (US) Inc., TCT Mobile, Inc.. (Bilson, David) (Entered: 11/29/2018)
11/30/2018		SO ORDERED D.I. 22 STIPULATION TO EXTEND TIME to respond to KPN's First Amended Complaint to December 18, 2018 filed by TCL Communication Technology Holdings Limited, TCL Communication, Inc., TCT Mobile, Inc., TCT Mobile (US) Inc. Ordered by Judge Christopher J. Burke on 11/30/2018. (dlb) (Entered: 11/30/2018)
12/03/2018		Minute Entry for proceedings held before Judge Christopher J. Burke - Case Management/Scheduling Conference held on 12/3/2018. The Court provided key dates to the parties and requested they file a final proposed scheduling order by December 7. (Clerk, D. Benyo) APPEARANCES: B. Farnan, A. Healy for Plaintiff; D. Bilson, A. Laquer for Defendant. (Court Reporter Taneha Carroll (Hawkins)) (dlb) (dlb) (Entered: 12/03/2018)
12/07/2018	23	[SEALED] STIPULATION to Stay Case by Koninklijke KPN N.V.. (Farnan, Brian) (Entered: 12/07/2018)
01/09/2019	24	STIPULATION of Dismissal by Koninklijke KPN N.V.. (Farnan, Brian) (Entered: 01/09/2019)
01/11/2019		SO ORDERED, re 24 Stipulation of Dismissal filed by Koninklijke KPN N.V., *** Civil Case Terminated. Signed by Judge Leonard P. Stark on 1/10/19. (ntl) (Entered: 01/11/2019)

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/413,052	05/15/2019	2447	4320	10-406-CON-REI	27	4

CONFIRMATION NO. 9330

FILING RECEIPT

20306
MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP
300 S. WACKER DRIVE
32ND FLOOR
CHICAGO, IL 60606

OC000000108273893

Date Mailed: 05/17/2019

Receipt is acknowledged of this reissue 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 FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

Hans Maarten Stokking, The Hague, NETHERLANDS;
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Applicant(s)

Koninklijke KPN N.V., Rotterdam, NETHERLANDS, Assignee (with 37 CFR 1.172 Interest);

Power of Attorney: The patent practitioners associated with Customer Number 20306

Domestic Priority data as claimed by applicant

This application is a REI of 14/015,765 08/30/2013 PAT 9654330
which is a CON of 12/808,665 06/16/2010 PAT 8549151
which is a 371 of PCT/EP2008/011014 12/22/2008
which claims benefit of 61/008,644 12/21/2007

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
EUROPEAN PATENT OFFICE (EPO) 08002517.4 02/12/2008 No Access Code Provided

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/413,052**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

Title

Method and System for Transmitting a Multimedia Stream

Preliminary Class

709

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/413,052

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	2200
TOTAL CLAIMS (37 CFR 1.16(i))	27 minus 20 =	* 7			OR	x 100 =	700
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1				x 460 =	460
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	4320

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
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(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-05-15
First Named Inventor	Stokking, Hans Maarten
Art Unit	TBA
Examiner Name	TBA
Attorney Docket Number	10-406-CON-REI

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	6661785	B1	2003-12-09	Zhang et al.	
	2	7043528	B2	2006-05-09	Schmitt et al.	
	3	7231658	B2	2007-06-12	Kunito et al.	
	4	7286521	B1	2007-10-23	Jackson et al.	
	5	7330283	B2	2008-02-12	Lee et al.	
	6	7639384	B2	2009-12-29	Lee et al.	
	7	7440440	B1	2008-10-21	Abichandani et al.	
	8	7532890	B2	2009-05-12	Davies et al.	

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	9	7539177	B2	2009-05-26	Hoffmann et al.	
	10	7643411	B2	2010-01-05	Andreasen et al.	
	11	7716310	B2	2010-05-11	Foti	
	12	7792025	B2	2010-09-07	Segel et al.	
	13	7953867	B1	2011-05-31	Andreasen	
	14	7961714	B1	2011-06-14	Watson et al.	
	15	8027353	B2	2011-09-27	Damola et al.	
	16	8032589	B2	2011-10-04	Foti	
	17	8046479	B2	2011-10-25	Einarsson et al.	
	18	8098627	B2	2012-01-17	Dutta et al.	
	19	7804848	B2	2010-09-28	Mirtorabi et al.	

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	20	8180338	B1	2012-05-15	Sylvain	
	21	8549151	B2	2013-10-01	Stokking et al.	
	22	8752107	B2	2014-06-10	Astrom	
	23	7724691	B2	2010-05-25	Mela et al.	
	24	6895439	B2	2005-05-17	Isomaki et al.	
	25	7181537	B2	2007-02-20	Costa-Requena et al.	
	26	6154813		2000-11-28	Martin et al.	

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	1	20020004835	A1	2002-01-10	Yarbrough	
	2	20050135366	A1	2005-06-23	Trappeniers et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2019-05-15
	First Named Inventor	Stokking, Hans Maarten
	Art Unit	TBA
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	Attorney Docket Number	10-406-CON-REI

	3	20070025301	A1	2007-02-01	Petersson et al.	
	4	20070201484	A1	2007-08-30	Kenrick et al.	
	5	20080092178	A1	2008-04-17	McNamara et al.	
	6	20090100147	A1	2009-04-16	Igarashi	
	7	20090180484	A1	2009-07-16	Igarashi	
	8	20090193469	A1	2009-07-30	Igarashi	
	9	20090235317	A1	2009-09-17	Igarashi	
	10	20090307307	A1	2009-12-10	Igarashi	
	11	20090313376	A1	2009-12-17	Cedervall et al.	
	12	20100005177	A1	2010-01-07	Cagenius	
	13	20100005501	A1	2010-01-07	Stokking et al.	

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	14	20110209188	A1	2011-08-25	Petersson et al.	
	15	20060128376	A1	2016-06-15	Alexis	
	16	20060291472	A1	2006-12-28	Guo et al.	
	17	20090217337	A1	2009-08-27	Astrom	
	18	20090190603	A1	2009-07-30	Damola et al.	
	19	20070177616	A1	2007-08-02	Jabri et al.	
	20	20050141542	A1	2005-06-30	Handekyn et al.	
	21	20030177251	A1	2003-09-18	Suzuki et al.	
	22	20070174401	A1	2007-07-26	Chu et al.	
	23	20050141541	A1	2005-06-30	Cuny et al.	
	24	20030154246	A1	2003-08-14	Ollikainen	

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	1	2007101473	WO	A1	2007-09-13	Telefonaktiebolaget LM Ericsson		
	2	2007140834	WO	A1				
	3	2007140812	WO	A1	2007-12-13	Telefonaktiebolaget LM Ericsson		
	4	1890463	EP	A1	2008-02-20	Comverse, Ltd.		

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	1	Schulzrinne, H. et al., "Real Time Streaming Protocol 2.0 (RTSP)", MMUSIC Working Group, Internet-Draft, November 19 , 2007, draft-ietf-mmusic-rfc2326bis-16. txt.	
	2	Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IMS-based IPTV stage 3 specification; ETSI TS 183 063 V2.1.0 (2008-06).	
	3	Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Dedicated IPTV subsystem stage 3 specification; ETSI TS 183 064 V2.1.1 (2008-10).	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	10-406-CON-REI

	4	Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IPTV Architecture; Dedicated subsystem for IPTV functions; ETSI TS 182 028 V2.0.0 (2008-01).	
	5	Meng Guo; Ammar, M.H.; Zegura, E.W. "A Vehicle-to-Vehicle Live Video Streaming Architecture,"Pervasive Computing and Communications, 2005. PerCom 2005. Third IEEE International Conference on 08-12 March 2005 Page(s):171 - 180.	
	6	Schulzrinne, H. et al., RFC 2326: Real Time Streaming Protocol (RTSP), April 1998, IETF, Pages 1-92.	
	7	ETSI, "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); IPTV Architecture; IPTV Functions Supported by the IMS Subsystem", ETSI TS 182 027 V2.0.0 (2008), pp. 1-57.	
	8	3rd Generation Partnership Project, 3GPP TS 26.237 V8.0.0 (2008-12), "IMS based PSS and MBMS User Service" Protocols (Release 8), 2008.	
	9	Schulzrinne, H. et al., RFC 3550: RTP: A Transport Protocol for Real-Time Applications, July 2003, IETF.	
	10	Rosenberg, J. et al., RFC 3261: SIP: Session Initiation Protocol, June 2002, IETF.	
	11	Handley, M. et al. RFC 4566: SOP: Session Description Protocol, July 2006, IETF.	
	12	Recommendation ITU-T H.248.1, Gateway control protocol: Version 3, 2013.	
	13	Rosenberg, J., "Voice on the Net and the IETF" Lucent Technologies, VoN and IETF: Iband98, Nov. 1998.	
	14	Singh, K and Schulzrinne, H., "Unified Messaging using SIP and RTSP" IP Telecom ServicesWorkshop, Sept 2000, Atlanta, Georgia.	

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	15	Wikipedia entry, "Session Initiation Protocol" 2007, at http://en.wikipedia.org/wiki/Session_Initiation_Protocol.	
	16	Wikipedia entry, "Session Description Protocol" 2007, at http://en.wikipedia.org/wiki/Session_Description_Protocol.	
	17	Wikipedia entry, "Real-time Transport Protocol" 2007, at http://en.wikipedia.org/wiki/Real-time Transport Protocol.	
	18	Wikipedia entry, "Real Time Streaming Protocol" 2007, at http://en.wikipedia.org/wiki/Real Time Streaming Protocol.	
	19	Ericpol Telecom, SIP-RTSP Gateway, Marketing Webpage, 2007, at http:/fwww.ericpol.pl/index.php/en/network_migration/sip_rtsp_gateway/.	
	20	Ericpol i-Evolution, "Network Migration & Combinatorial Services" Marketing Whitepaper, 2004.	
	21	Burger, E., "A Mechanism for Content Indirection in Session Initiation Protocol (SIP) Messages", Network Working Group, Request for Comments 4483, www.rfc-editor.org/rfc/rfc4483.txt, May 2006.	
	22	International Search Report and Written Opinion, PCT International Application NO. PCT/EP2008/011014 dated December 22,2008.	
	23	European Extended Search Report, European Patent Application No. 08002517.4 dated July 4, 2008.	
	24	Fresa, A. et aL, "A Testbed for Experimentation of Innovative Services in the B3G Framework", Testbeds and Research Infrastructures for the Development of Networks and Communities, February 23-25, 2005, pp. 110-119.	
	25	Whitehead, S. et aL, "An Evaluation of Session Initiation Protocol (SIP) for Use in Streaming Media Applications", Standard-Working-Draft, Internet Engineering Task Force, IETF, No.2, October 22, 2006, whole document.	

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	First Named Inventor	Stokking, Hans Maarten
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	26	Friedrich, 0. et aL, "Next Generation IPTV Services for an Extended IMS Architecture", Autonomous Decentralized Systems, 2007, Eight International Symposium on IEEE, March 1, 2007, 6 pages.
	27	Takei, Kentaro et aL, "Design of Gateway System Between Different Signaling Protocols of the Multimedia Session on the Internet", Information Networking, 2001, Proceedings 15th International Conference, pp. 297-302.
	28	Singh, K. et al, "Interworking Between SIP/SDP and H.323", Internet Engineering Task Force Internet Draft, January 2000, pp. 1-39.
	29	Khan, S. et aL, "Experiences with Blending HTTP, RTSP, and IMS", IEEE Communications Magazine IEEE USA, VoL 45, No.3, March 2007, pp. 122-128.
	30	Bodzinga, Anne et al, "Interworking IPTV Services with IMS", Telecommunications Network Strategy and Planning Symposium, November 2006, pp. 1-5.
	31	Anonymous, "MoFu IV AS Interactive Video Applicatino Server", Whitepaper, Mobilfuture, [Online], December 2006, pp. 1-21, http:f/mobilfuture.kei.pl/files/MoFu_IVAS_whitepaper_v1.0.pdf.
	32	Weldon, "IMS and IPTV, Perfect Together", Internet Citation [online], January 17, 2006, http:f/ipcommunications. tmcnetcom/hot-topics/ims/articles/280-ims-iptv-perfect-together. htm, pp. 1-4.
	33	Singh, Kundan et aL, "Interworking Between SIP/SOP and H.323", IP Telecom Services Workshop, September 2000, whole document.
	34	GSM Association Official Document IR.74, "Video Share Interoperability Specification 1.2" 11th September 2008, pp.1-18.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	TBA
	Attorney Docket Number	10-406-CON-REI

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Signature	/David A. Grabelsky/	Date (YYYY-MM-DD)	2019-05-15
Name/Print	David A. Grabelsky	Registration Number	59208

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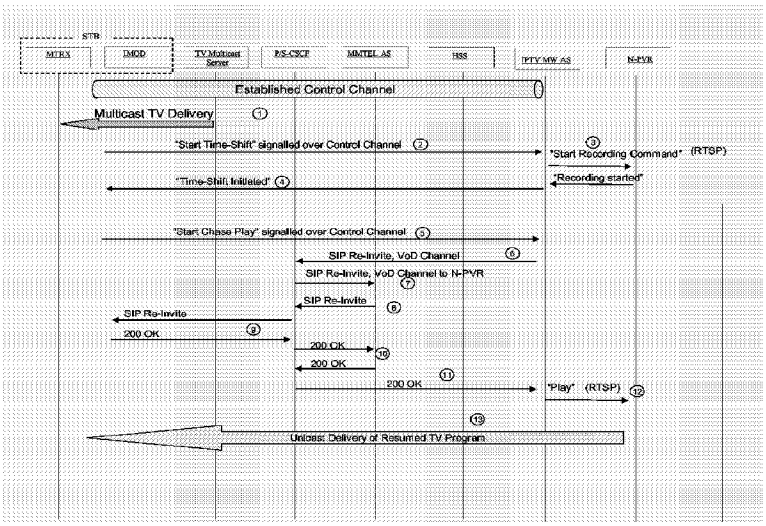
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(54) Title: TIME-SHIFTING AND CHASE-PLAY FOR AN IPTV SYSTEM



(57) Abstract: Time-shifting and chase-play is provided for an IPTV system, utilising a control channel established between the originating user and a selected IPTV Application Server (IPTV-AS). When time shifting of the IPTV content is required, for example due to receipt of a telephone call, a start time-shift command is sent to the IPTV-AS over the control channel. A start recording command is then sent from the IPTV-AS to a Network PVR system to initiate recording of the current multicast content. Subsequently, when the user is ready to resume viewing of the time-shifted content, a start chase-play command is sent to the IPTV-AS over the control channel to establish a unicast channel for playback of the time-shifted content; and a playback command is sent from the IPTV-AS to the Network PVR system to initiate playback of the time-shifted content over the unicast channel. Such a solution utilizes the standardized IMS communication system and its network architecture and a PVR residing in the Network to limit the traffic transmitted over the first mile connection to a home.

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Time-Shifting and Chase-Play for an IPTV System

Field of the Invention

The present invention relates to time-shifting and chase-play for an IPTV system.

Reference is also made to the Applicant's copending PCT Application No. PCT/EP2006/060279, the contents of which are incorporated herein by reference..

Background to the Invention

IP Multimedia services provide a dynamic combination of voice, video, messaging, data, etc. within the same session. By increasing the number of basic applications and the media that it is possible to combine, it is possible to increase the number of services offered to the end users, and thus to enrich the inter-personal communication experience. This will lead to a new generation of personalised, rich multimedia communication services, including so-called "combinational IP Multimedia" services that are considered in more detail below.

IP Multimedia Subsystem (IMS) is the technology defined by the Third Generation Partnership Project (3GPP) to provide IP Multimedia services over mobile communication networks (3GPP TS 22.228, TS 23.218, TS 23.228, TS 24.228, TS 24.229, TS 29.228, TS 29.229, TS 29.328 and TS 29.329 Releases 5 to 7). IMS provides key features to enrich the end-user person-to-person communication experience through the use of standardised IMS Service Enablers, which facilitate new rich person-to-person (client-to-client) communication services as well as person-to-content (client-to-server) services over IP-based networks. The IMS makes use of the Session Initiation Protocol (SIP) to set up and control calls or sessions between user terminals (or user terminals and application servers). The Session Description Protocol (SDP), carried by SIP signalling is used to describe and negotiate the media components of the session. Whilst SIP was created as a user-to-user protocol,

IMS allows operators and service providers to control user access to services and to charge users accordingly.

The boundaries between the services provided by telecommunication operators, TV operators, and internet service providers are disappearing, and such companies are all offering customers all three services (so called "triple play"). For telecommunication operators wishing to offer TV services, a popular choice is to utilize so called IPTV which delivers the TV service over IP and the customer's broadband connection (e.g. ADSL, VDSL, Public Ethernet, etc.).

IPTV has a limited bandwidth at its disposal in the "first mile" of the broadband access from the xDSL modem and the broadband access (DSLAM). Linear content delivery, in which all channels in a subscription ("program package") are simultaneously delivered to the set top box (STB), is not suitable for IPTV due to the limited bandwidth. xDSL connection capacity varies depending on the DSL version used and the distance of the "first mile". ADSL can provide a capacity between 3 to 8 Mbps, whereas ADSL2 promises to deliver up to 25 Mbps downstream and VSDL data rates greater than 30 Mbps. Standard quality MPEG2 content requires 2 Mbps per channel, and HDTV will require 8-10 Mbps per channel. Luckily, the new MPEG4 standard will decrease the required bandwidth to half with the same quality as the MPEG2 coded content. Nevertheless, the available bandwidth is a scarce resource, and IPTV solutions must limit the number of channels to be delivered over the "first mile".

Existing time-shift/chase-play solutions are either based on proprietary network technology or on use of a Private Video Recorder (PVR) in the home. The solution described herein, utilizes the standardized IMS communication system and its network architecture, and a PVR residing in the Network to limit the traffic transmitted over the first mile connection to a home.

Summary of the Invention

It is an object of the present invention to provide a time-shift/chase-play solution based on a Network Private Video Recorder (N-PVR).

According to a first aspect of the present invention there is provided a method of time-shifting and chase-play for an IPTV system, the method comprising:

establishing a control channel between the originating user and a selected IPTV Application Server (IPTV-AS);

sending a start time-shift command to the IPTV-AS over the control channel;

sending a start recording command from the IPTV-AS to a Network PVR system to initiate recording of current multicast content;

when the user is ready to resume viewing of the time-shifted content, sending a start chase-play command to the IPTV-AS over the control channel to establish a unicast channel for playback of the time-shifted content; and

sending a playback command from the IPTV-AS to the Network PVR system to initiate playback of the time-shifted content over the unicast channel.

The invention addresses the issue of time-shifting and chase-play by the use of a Network PVR (N-PVR). An N-PVR makes a lot of sense in IPTV solutions. A PVR in the home requires content to be delivered over the first mile, whereas an N-PVR does not. Content is recorded in the network and will thus not burden the first mile if a user wishes to watch one channel whilst recording another simultaneously.

A user may choose to initiate the time-shift function of IPTV content delivery by means of a set top box (STB) for a number of reasons, such as an event taking place in the home requiring the user's full attention, such as the ringing of a door-bell, the arrival of an ordered pizza, or the imminent start of booked laundry time; the occurrence of incoming communication services, such as telephony, video-telephony, messaging or chat; and notification of a user-subscribed-to event, such as notification of lottery results, notification of hockey/football results, or the imminent start of an ordered pay-per-view movie

The solution uses capabilities in IMS to establish a unicast delivery channel of recorded content when a user decides to watch the time-shifted content and initiates chase-play, and allows the IPTV service to integrate with other IMS based services. Examples of other IMS based services are telephony, video-telephony, messaging, chat and push-to-talk.

The solution includes a mechanism for switching from multicast/broadcast delivered content to unicast delivered content. Such switching typically takes place when a user decides to start the time-shifting of multicast delivered content, with the object of resuming delivery of the content at a later time utilising chase-play over a unicast channel.

Some of the advantages obtained by use preferred embodiments of the present invention include:

(i) The possibility of blending the IPTV Service, IMS Communication Services and Personalized Information Services.

(ii) Limitation of the amount of content transmitted over the first mile of a broadband connection (the first mile being a limited resource where many service fight for available capacity).

(iii) Intelligent delivery of TV content allowing other services to utilize available bandwidth.

(iv) An IMS based method for switching between multicast and unicast delivery of content.

(v) An IPTV-AS acting as a gateway between a Network PVR system and STBs. This enables STB – IPTV-AS specific user interaction while allowing operators to use many types of N-PVR system. The adjustment to N-PVR required procedures and protocols is handled by the IPTV-AS.

(vi) The network taking an active role in the IPTV delivery and allowing operators to offer personalized Triple-Play service offerings.

According to a further aspect of the present invention, there is provided a time-shifting and chase-play IPTV system, comprising:

channel control means for establishing a control channel between the originating user and a selected IPTV Application Server (AS);

start time-shift means for sending a start time-shift command to the IPTV-AS over the control channel;

start recording means for sending a start recording command from the IPTV-AS to a Network PVR system to initiate recording of current multicast content;

start chase-play means for sending a start chase-play command to the IPTV-AS over the control channel when the user is ready to resume viewing of the time-shifted content, to establish a unicast channel for playback of the time-shifted content; and

playback means for sending a playback command from the IPTV-AS to the Network PVR system to initiate playback of the time-shifted content over the unicast channel.

According to a further aspect of the present invention, there is provided computer program code for carrying out the method of the first aspect of the invention.

Brief Description of the Drawings

In order that the invention may be more fully understood, a preferred embodiment in accordance with the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram illustrating the establishment of a control channel using a secure TCP/TLS connection;

Figure 2 is a schematic diagram illustrating a sequence for switching between multicast and unicast delivery of content;

Figure 3 is a schematic diagram illustrating a sequence for an Incoming Call Notification on screen; and

Figure 4 is a schematic diagram illustrating a sequence for a PSTN/ISDN Incoming Call Notification;

Figure 5 is a schematic diagram illustrating a sequence for an Extended Incoming Call Notification scenario with Time-shift; and
Figure 6 is a schematic diagram illustrating a sequence for an Event Triggered Time-shift.

Detailed Description of Preferred Embodiment

By way of background to the preferred embodiment, the following is a brief description of how the IP Multimedia Subsystem (IMS) fits into the mobile network architecture in the case of a GPRS/PS access network. Call/Session Control Functions (CSCFs) operate as SIP proxies within the IMS. The 3GPP architecture defines three types of CSCFs: the Proxy CSCF (P-CSCF) which is the first point of contact within the IMS for a SIP terminal; the Serving CSCF (S-CSCF) which provides services to the user that the user is subscribed to; and the Interrogating CSCF (I-CSCF) whose role is to identify the correct S-CSCF and to forward to that S-CSCF a request received from a SIP terminal via a P-CSCF.

A user registers with the IMS using the specified SIP REGISTER method. This is a mechanism for attaching to the IMS and announcing to the IMS the address at which a SIP user identity can be reached. The user receives a unique Uniform Resource Identifier (URI) from the S-CSCF to be used when it initiates a dialog. In 3GPP, when a SIP terminal performs a registration, the IMS authenticates the user, and allocates a S-CSCF to that user from the set of available S-CSCFs. Whilst the criteria for allocating S-CSCFs is not specified by 3GPP, these may include load sharing and service requirements. It is noted that the allocation of an S-CSCF is key to controlling (and charging for) user access to IMS-based services. Operators may provide a mechanism for preventing direct user-to-user SIP sessions that would otherwise bypass the S-CSCF.

During the registration process, it is the responsibility of the I-CSCF to select an S-CSCF if one is not already selected. The I-CSCF receives the required S-

CSCF capabilities from the home network's Home Subscriber Server (HSS), and selects an appropriate S-CSCF based on the received capabilities. (It is noted that S-CSCF allocation is also carried out for a user by the I-CSCF in the case where the user is called by another party, and the user is not currently allocated an S-CSCF.) When a registered user subsequently sends a session request (e.g. SIP INVITE) to the IMS, the request will include the P-CSCF and S-CSCF URIs so that the P-CSCF is able to forward the request to the selected S-CSCF. This applies both on the originating and terminating sides (of the IMS). (For the terminating call the request will include the P-CSCF address and the User Equipment (UE) address.)

Within the IMS service network, Application Servers (ASs) are provided for implementing IMS service functionality. ASs provide services to end-users in an IMS system, and may be connected either as end-points over the 3GPP defined Mr interface, or "linked in" by an S-CSCF over the 3GPP defined ISC interface. In the latter case, Initial Filter Criteria (IFC) are used by an S-CSCF to determine which ASs should be "linked in" during a SIP Session establishment. Different IFCs may be applied to different call cases. The IFCs are received by the S-CSCF from an HSS during the IMS registration procedure as part of a user's User Profile (UP). Certain ASs will perform actions dependent upon subscriber identities (either the called or calling subscriber, whichever is "owned" by the network controlling the AS). For example, in the case of call forwarding, the appropriate (terminating) application server will determine the new terminating party to which a call to a given subscriber will be forwarded.

The preferred embodiment to be described below relates to an IMS-enabled control channel for an IPTV set top box (STB). The control channel is set up using standard IMS procedures and is later used to send control messages to the IPTV applications server, as well as to deliver personalized content, such as advertisements, voting responses, personalized voting triggers and targeted interactive events.

IMOD Connection to IPTV AS

It should be noted that the STB is described as a single unit in the following. The sequences of the figures show division of the STB into an IMOD and a MTRX but the interaction between these is not described as this is not directly relevant to the inventive concepts described.

When the STB starts, it first registers on the IMS network using the IMS Private ID (IMPI - the private address of the STB) of the Identity and IMS Module (IMOD) in the authorization header, and the default 'family STB' public address in the "From" and "To" headers (as in the normal SIP REGISTER message). Both IMPUs representing the Media Transmitter/Receivers (MTRXs) and IMPUs representing users may register. For personalisation of services, a "User Connection to IPTV MW AS" use routine is executed.

Once the STB is registered, it establishes a secure TCP/TLS connection with the IPTV AS, using a SIP INVITE message. The procedure, as schematically indicated in Figure 1, is as follows (with reference to the numbers used in the figure):

1. The MTRX (the media end point of the STB) indicates to the IMOD (the Authentication / ISIM carrier part of the STB) that a connection to the IPTV MW AS should be established. The differentiation between the IMOD and the MTRX is optional, and can be seen as an STB internal realization. An STB not having this differentiation would behave identically in relation to the IMS network.

2. The IMOD sends a SIP INVITE message to the P-CSCF. The Public Service Identity of the IPTV MW AS is used to address the IPTV MW AS and may be pre-configured in the ISIM or configured by device management procedures. An SDP description of a TLS/TCP session is included. An alternative procedure would be to use an application framing protocol over the pure TCP/TLS channel, such as MSRP. In this case the SDP description contains MSRP/TLS/TCP instead of only TLS/TCP.

3. The SIP INVITE message is forwarded to the I-CSCF. 3GPP 23.228 describes alternative PSI routing on the terminating side, namely:

a. The I-CSCF interrogates I HSS where the HSS treats every PSI as a "user" and returns routing instructions to the end-point representing the PSI.

b. I-CSCF interrogation to the HSS where the HSS returns the user allocated S-CSCF. The S-CSCF routes the PSI addressed Invite according to IFC information stored per "PSI-subscriber". The "PSI-subscriber" is assigned an S-CSCF.

c. Sub-domain routing in the I-CSCF where the I-CSCF uses DNS to resolve the PSI into an IP-address for the end-point representing the PSI.

This solution requires Alternative b.

4. The I-CSCF uses DNS to translate the Public Service Identity to the IP address of the actual server that will handle this user this time (load sharing can be applied here). The S-CSCF then sends the SIP INVITE message to the chosen IPTV MW AS. The IPTV MW AS then executes the "Fetch User Data" sub-sequence.

5. The IPTV MW AS returns a 200 OK response. The URL of the user's TV service portal is included in the SDP, as, for example, an XML body that is interpreted in the STB but not in the intermediate nodes.

6. The S-CSCF forwards the 200 OK response.

7. The P-CSCF forwards the 200 OK response.

8. The IMOD receives the URL of the default user's TV service portal (i.e. the portal associated with the IMPU of the MTRX), and it is included in the SDP. This information may be included as an XML body in the 200 OK message, but other means are also possible.

9. The IMOD sends a SIP ACK response.

10. The P-CSCF forwards the SIP ACK response.

11. The S-CSCF forwards the SIP ACK response.

12. The IMOD sets up a TLS/TCP connection to the IPTV MW AS using a server side certificate.

This procedure can also be expanded to add distribution of keys for service protection (a.k.a. conditional access) if the service protection in the system is based on ciphering the content streams. This would involve additional steps after the last step above in which, for example, the keys could be fetched via HTTP. If the different users have different channel bundles, then that type of step would also be needed after the "User Connection, Local User" procedure.

This procedure could also be run only on an "as needed" basis (i.e. the connection would not be automatically set up at registration, but only when access to the IPTV MW AS is required), but the preferred alternative is that the connection is established immediately after the STB/MS registers. This is so that the delay in setting up this connection can be avoided at a time when interaction with the IPTV MW AS is required.

A new control channel is established for each MTRX that is to be connected to the IMOD, as described in the "IMS IPTV Architecture Study" ("Rechon Architecture", EAB-05:045608, Rev A, 2005-12-22).

The described control channel enables a plethora of functionalities, like remote control on the IPTB STB, as described in "IMS IPTV Architecture Study", EAB-06:001721, Rev A, 2006-02-08, or the user cases described in next section.

When the STB starts, it first registers on the IMS network using the IMS Private ID (IMPI - the private address of the STB) of the Identity and IMS Module (IMOD) in the authorization header, and the default 'family STB' public address in the "From" and "To" headers (as in the normal SIP REGISTER message). Once the STB has been registered, it establishes a secure TCP/TLS connection with the IPTV AS using a SIP INVITE message.

STB Initiated Time-Shift

In the event that the user requires time shifting of the content to begin, the following IMS based method for switching between multicast and unicast delivery of content can be initiated by the STB. The procedure, as schematically indicated in Figure 2, is as follows (with reference to the numbers used in the figure):

1) A control channel is established between the STB and the IPTV-AS by the procedure described above with reference to Figure 1. At this point the STB is receiving content that is delivered by multicast.

2) The user decides to start the Time-Shift function due to an event taking place in the home requiring the user's full attention, such as the ringing of a door-bell, the arrival of an ordered pizza, or the imminent start of booked laundry time, etc. The STB generates a "Start Time-Shift" command and sends this over the control channel to the IPTV-AS. The exact procedure and syntax of the command is a matter between the STB and the IPTV-AS, and many different variants are possible. The IPTV-AS interprets the command before taking the appropriate action.

3) The IPTV-AS initiates recording of the currently viewed multicast channel. This is possible as the STB always reports which multicast channel it is

currently receiving after a channel change has occurred (not shown in the figure). A "Start Recording" command is sent from the IPTV-AS to the N-PVR system. The exact procedure and syntax of the command is a matter between the STB and the IPTV-AS, and many different variants are possible. The IPTV-AS acts as a gateway between the N-PVR system and the STB. This enables STB / IPTV-AS specific user interaction whilst allowing use by operators of many different types of N-PVR system. The adjustment of the required N-PVR procedures and protocols is handled by the IPTV-AS.

4) An indication that the Time-Shift has started is returned to the STB and optionally displayed to the user. The multicast channel may or may not continue to be delivered to the STB after the Time-Shift has started. This is a deployment option.

5) When the user is ready to resume viewing of the time-shifted content, he initiates the Chase Play function and a "Start Chase Play" command is sent from the STB to the IPTV-AS over the control channel. The exact procedure and syntax of the command is a matter between the STB and the IPTV-AS, and many different variants are possible. The IPTV-AS acts as a gateway between the N-PVR system and the STB. This enables STB / IPTV-AS specific user interaction whilst allowing use by operators of many different types of N-PVR system. The adjustment of the required N-PVR procedures and protocols is handled by the IPTV-AS. RTSP is used in the sequence by way of example but the invention is not limited to the use of RTSP.

6) The IPTV-AS sends a SIP INVITE message in the same SIP session as the "Start Chase Play" command that is associated with the control channel. The SIP Re-Invite message is a request to establish a unicast channel that will be used to deliver the recorded (time-shifted) content stored in the N-PVR system. As a result the content delivery changes from multicast to unicast delivery with IMS being used to effect this change.

7-8) The SIP INVITE message is transmitted over the ISC and the Multimedia Telephony (MMTEL) AS, MMTel being used as the IMS Communication Service for IPTV in this case, thus resulting in the invocation of the MMTel AS over the ISC. It should however be noted that the method will work with other IMS Communication Services and is not limited to MMTel, MMTel being given merely by way of example. The MMTel AS may invoke supplementary services, such as restriction on the number of concurrent unicast deliveries, but this is not included in the sequence.

9-10) The SIP INVITE message is sent to the STB which acknowledges the request with a 200 OK response to accept the unicast channel invitation.

10, 11) The 200 OK response is sent along the SIP session path to the IPTV-AS.

12) The IPTV AS initiates playback of the recorded content by means of a "Play" command to the N-PVR system. The IPTV-AS acts as a gateway between the Network PVR system and the STB. This enables STB / IPTV-AS specific user interaction whilst allowing use by operators of many different types of N-PVR system. The adjustment of the required N-PVR procedures and protocols is handled by the IPTV-AS. RTSP is used as an example in the sequence but the invention is not limited to RTSP.

13) Unicast delivery is started.

Incoming Call Notification

This sequence describes how an Incoming Call Notification on a TV-screen and user determined call handling can be implemented for IMS calls to the STB/TV. The call is established to the STB/TV in this scenario, and the STB/TV is also used to notify a user of an incoming call and to allow the user to specify how the call shall be handled. The procedure, as schematically indicated in Figure 3, is as follows (with reference to the numbers used in the figure):

1) A control channel is established between the STB and the IPTV-AS by the procedure described above with reference to Figure 1. At this point the STB is receiving content that is delivered by multicast.

2) The I-CSCF in the called subscriber's network (the STB's network) receives a SIP INVITE message from the same IMS network or another IMS network, or from an IMS gateway to another network (e.g. ISDN/PSTN). The I-CSCF returns a 100 Trying response to the sender of the SIP Invite message to stop periodic retransmission of the same SIP INVITE message.

3) I-CSCF uses a Diameter LIR (Location Information Request) to obtain the called subscriber's S-CSCF address and the HSS returns this address in the LIA (Location Information Answer).

4) The SIP INVITE message is sent to the called subscriber's S-CSCF (100 trying response returned by the S-CSCF).

5) The trigger criteria for the called subscriber are stored by the S-CSCF. This IFC contains information about which AS's are to be invoked over the ISC interface. This example shows an incoming call for the MMTel IMS communication service and the MMTel AS is invoked over the ISC. The MMTel AS may invoke supplementary services, such as barring or forwarding of incoming sessions, but this is not included in the sequence.

6) The MMTel AS exposes enabling services towards other AS's to allow these to affect the session set up. The IPTV AS has subscribed to the incoming call event from the MMTel AS, and the service definition of the exposed services is based on the Parlay-X Web Service definitions for Call Control. A Parlay-X "Handle Called Number Request" is sent to the IPTV-AS. It should be noted that a Parlay-X service can also be exposed by an OSA(Open Service Access)/Parlay(-X) gateway that is connected over the ISC (IMS Service Control) interface in the same way as an IMS (IP Multimedia Subsystem) AS. It

should further be noted that the IPTV-AS can be connected over the ISC in series with the MMTel AS to perform the Call Notification procedures described below. Whilst this description only refers to the alternative where the Parlay-X Call Control service is exposed by the MMTel AS, it will be appreciated that the invention is not limited to this.

7) An "Incoming Call Notification" command is sent from the IPTV-AS to the STB over the control channel. The exact procedure and syntax of the command is a matter between the STB and the IPTV-AS, and many different variants are possible. The user is given a number of call handling options, such as:

- allow call to STB/TV
- forward call to voice-mail (multimedia mail)
- forward call to another number

The user's choice is returned by the STB to the IPTV-AS. In the following it is assumed that the user chooses to allow the call.

8) The IPTV-AS returns a Parlay-X "Handle Called Number Response" to the MMTel AS with information specifying that the call set up may proceed to the STB.

9) The S-CSCF receives the SIP Invite message from the MMTel AS (MMTel works as a B2BUA in this example). An S-CSCF may perform forking for the contacts registered for one particular Public User Identity (PUI). The STB has a unique PUI in this example and no other SIP UA is allowed to register as a contact for the STB's PUI. The STB may however register as a contact for other user assigned PUIs, and this allows a mobile phone and the STB to register as possible contacts for one particular PUI for example.

10, 11, 12 13) The SIP Invite message is sent to the STB and the STB returns a 180 Ringing response which is relayed along the SIP path.

14, 15, 16, 17) A 200 OK response from the STB indicates that the session has been accepted and that the media plane can be established.

18) The media plane for speech is established and the call proceeds.

PSTN/ISDN Incoming Call Notification

This sequence describes how an Incoming Call Notification on a TV-screen and user determined call handling can be implemented for PSTN/ISDN phones in the home. It should be noted that the call is not established to the STB/TV in this scenario. The STB/TV is only used to notify a user of an incoming call and to allow the user to specify how the call shall be handled. The procedure, as schematically indicated in Figure 4, is as follows (with reference to the numbers used in the figure):

1) A control channel is established between the STB and the IPTV-AS by the procedure described above with reference to Figure 1. At this point the STB is receiving content that is delivered by multicast.

2, 3) An SSF (Service Switching Function) in the called subscriber's network receives an ISUP(ISDN User Part) IAM (Initial Address Message). This triggers the SSF to contact a Service Control Point (SCP) in an IN (Intelligent Network) architecture.
An OSA/Parlay GW (Gateway) plays the role of an SCP towards the SSF, but allows AS's to take the real decisions on how to handle calls. Many different variants on INAP protocols exist, e.g. CS1, CS2, CAP, etc. This description is given with reference to an IDP (Initial Detection Point) operation invocation which can be found in CAP (CAMEL Application Part), although it will be appreciated that the invention is not limited to this particular type of INAP (Intelligent Network Application Part).

4) The IDP is translated into the Parlay-X Web service definition for Call Control. A Parlay-X "Handle Called Number Request" is sent to the IPTV-AS. This is the same message that was sent in the previous sequence from the MMTel IMS AS to the IPTV AS, and enables the IPTV AS to have a common call handling interface for IMS and PSTN/ISDN calls. It should be noted that the

IPTV-AS can also be connected as an SCP (Service Control Point) via INAP. This description refers only to the alternative where the Parlay-X Call Control service is used, but the invention is not limited to this.

5) An "Incoming Call Notification" command is sent from the IPTV-AS to the STB over the control channel. The exact procedure and syntax of the command is a matter between the STB and the IPTV-AS, and many different variants are possible. The user is given a number of call handling options, such as:

- allow call to STB/TV
- forward call to voice-mail (multimedia mail)
- forward call to another number

The user's choice is returned by the STB to the IPTV-AS. In the following it is assumed that the user chooses to allow the call.

6) The IPTV-AS returns a Parlay-X "Handle Called Number Response" to the MMTel AS with information specifying that the call set up to the PSTN/ISDN phone may proceed.

7) The OSA/Parlay GW returns the appropriate INAP message to the SSF, e.g. a Continue operation invocation.

8) The SSF sends an ISUP IAM message to the Local Exchange that the user's PSTN/ISDN phone is connected to.

9) A Q.931 ISDN Set-up message is sent to the ISDN phone (only ISDN shown from now on), and is acknowledged by a Call Confirmed message.

10, 11) An ISUP ACM (Address Complete Message) message is sent from the Local Exchange to the SSF (Service Switching Function) and onwards.

12, 13, 14) An alert is forwarded in ISUP CPG (Call Progress).

15, 16, 17) An Answer message is translated into an ISUP ANM (Answer Message).

18) The ISDN/PSTN call is established.

Extended Incoming Call Scenario with Time-shift

This sequence extends the Incoming Call Notification sequence with Time-Shift functionality. The procedure, as schematically indicated in Figure 5, is as follows (with reference to the numbers used in the figure):

1) A control channel is established between the STB and the IPTV-AS by the procedure described above with reference to Figure 1. At this point the STB is receiving content that is delivered by multicast.

2) The I-CSCF in the called subscriber's network (the STB's network) receives a SIP Invite message from the same IMS network or another IMS network, or from an IMS gateway to another network (e.g. ISDN/PSTN). The I-CSCF returns a 100 Trying response to the sender of the SIP Invite message to stop periodic retransmission of the same SIP Invite message.

3) I-CSCF uses a Diameter LIR (Location Information Request) to obtain the called subscriber's S-CSCF address and the HSS returns this address in the LIA (Location Information Answer).

4) The SIP INVITE message is sent to the called subscriber's S-CSCF (100 trying response returned by the S-CSCF).

5) The trigger criteria for the called subscriber are stored by the S-CSCF. This IFC contains information about which AS's that are to be invoked over the ISC interface. This example shows an incoming call for the MMTel IMS communication service and the MMTel AS is invoked over the ISC. The MMTel AS may invoke supplementary services such as barring or forwarding of incoming sessions, but this is not included in the sequence.

6) The MMTel AS exposes enabling services towards other AS's to allow these to affect the session set up. The IPTV AS has subscribed to the incoming call event from the MMTel AS, and the service definition of the exposed services is based on the Parlay-X Web Service definitions for Call Control. A Parlay-X "Handle Called Number Request" is sent to the IPTV-AS. It should be noted that a Parlay-X service can also be exposed by an OSA/Parlay(-X) gateway (OSA = Open Service Access) that is connected over the ISC (IMS Service Control) interface in the same way as an IMS-AS. It should further be noted that the IPTV-AS can be connected over the ISC in series with the MMTel AS to perform the Call Notification procedures described below. Whilst this description only refers to the alternative where the Parlay-X Call Control service is exposed by the MMTel AS, it will be appreciated that the invention is not limited to this.

7) An "Incoming Call Notification" command is sent from the IPTV-AS to the STB over the control channel. The exact procedure and syntax of the command is a matter between the STB and the IPTV, and many different variants are possible. The user is given a number of call handling options, such as:

- allow call to STB/TV
- forward call to voice-mail (multimedia mail)
- forward call to another number
- allow call and start Time-Shift

The user's choice is returned by the STB to the IPTV-AS. In this example the user chooses to allow the call and to start Time-Shift.

8) The IPTV-AS initiates recording of the currently viewed multicast channel. This is possible since the STB always reports which multicast channel it is currently receiving after a channel change (not shown in the sequences). A "Start Recording" command is sent from the IPTV-AS to the N-PVR system. The IPTV-AS acts as a gateway between the Network PVR system and the STB. This enables STB / IPTV-AS specific user interaction whilst allowing use

by operators of many different types of N-PVR system. The adjustment of the required N-PVR procedures and protocols is handled by the IPTV-AS.

9) The IPTV-AS returns a Parlay-X "Handle Called Number Response" to the MMTel AS with information specifying that the call set up may proceed to the STB. The S-CSCF receives the SIP INVITE message from the MMTel AS (MMTel works as a B2BUA in this example). An S-CSCF may perform forking for the contacts registered for one particular Public User Identity. The STB has a unique PUI in this example and no other SIP UA is allowed to register as a contact for the STB's PUI. The STB may however register as a contact for other user assigned PUIs, and this allows a mobile phone and the STB to register as possible contacts for one particular PUI for example.

10, 11, 12 13) The SIP INVITE message is sent to the STB and the STB returns a 180 Ringing response which is relayed along the SIP path.

14, 15, 16, 17) A 200 OK response from the STB indicates that the session has been accepted and that the media plane can be established.

18) The media plane for speech is established and the call proceeds.

19) When the user is ready to resume viewing of the time-shifted content, he initiates the Chase Play function.

20) A "Start Chase Play" command is sent from the STB to the IPTV-AS over the control channel. The exact procedure and syntax of the command is a matter between the STB and the IPTV-AS, and many different variants are possible. The IPTV-AS acts as a gateway between the Network PVR system and the STB. This enables STB / IPTV-AS specific user interaction whilst allowing use by operators of many different types of N-PVR system. The adjustment of the required N-PVR procedures and protocols is handled by the IPTV-AS. RTSP is used as an example in the sequence but the invention is not limited to RTSP.

21) The IPTV-AS sends a SIP INVITE message on the same SIP session that is associated with the control channel. The SIP INVITE message is a request to establish a unicast channel that will be used to deliver the recorded (time-shifted) content stored in the N-PVR system. As a result the content delivery changes from multicast to unicast with the IMS being used to effect this change.

22, 23) The SIP INVITE message is transmitted over the ISC and the MMTEL AS.

24, 25) The SIP INVITE message is sent to the STB which acknowledges the request with a 200 OK response to accept the unicast channel invitation.

26) The IPTV AS initiates playback of the recorded content by means of a "Play" command to the N-PVR system. The IPTV-AS acts as a gateway between the Network PVR system and the STB. This enables STB / IPTV-AS specific user interaction whilst allowing use by operators of many different types of N-PVR system. The adjustment of the required N-PVR procedures and protocols is handled by the IPTV-AS. RTSP is used as an example in the sequence but the invention is not limited to RTSP.

27) Unicast delivery is started.

Event Triggered Time-Shift

This sequence is an example of how operators can use the control channel to deliver personalized information services combined with the Time-Shift function described previously. This solution makes it possible to combine IPTV Service, IMS Communication Services and Personalized Information Services and enables the network to take an active role in IPTV delivery and operators to offer personalized Triple-Play service offerings. The procedure, as schematically indicated in Figure 7, is as follows (with reference to the numbers used in the figure):

1) A control channel is established between the STB and the IPTV-AS by the procedure described above with reference to Figure 1. At this point the STB is receiving content that is delivered by multicast.

2, 3) Two user subscribed-to information events are delivered to the IPTV-AS. The procedure for subscribing to the events is not shown in the sequence but can be implemented over the control channel.

4) The first event reporting lottery results is delivered to the STB over the control channel, and the results are displayed by the STB. The user may start the Time-Shift function if so desired, but this is not shown.

5) A notification is sent over the control channel specifying that a recorded football goal is available. The subscribed-to event may for example be goals occurring in a particular football game. When presented with this information, the user can choose to watch the goal and start the Time Shift for the channel that he is currently watching.

6) As a result the IPTV-AS initiates recording of the currently viewed multicast channel. This is possible as the STB always reports which multicast channel it is currently receiving after a channel change has occurred (not shown in the figure).

7) The IPTV-AS sends a SIP INVITE message in the same SIP session as that of the notification sent over the control channel. The SIP INVITE message is a request to establish a unicast channel that will be used to deliver the football goal stored in the N-PVR2 system.

8,9) The SIP INVITE message is transmitted over the ISC and the MMTEL AS. MMTel is used as the IMS Communication Service for IPTV in this method, thus resulting in the invocation of the MMTel AS over the ISC.

10, 11) The SIP INVITE message is sent to the STB which acknowledges the request with a 200 OK response to accept the unicast channel invitation.

12) The IPTV AS initiates playback of the recorded goal by means of a "Play" command to the N-PVR system. The IPTV-AS acts as a gateway between a N-PVR system and the STB.

13) Unicast delivery of the goal is started.

14) When the user is ready to resume viewing of the time-shifted content, he initiates the Chase Play function.

15) A "Start Chase Play" command is sent from the STB to the IPTV-AS over the control channel. The exact procedure and syntax of the command is a matter between the STB and the IPTV-AS, and many different variants are possible.

16) The IPTV-AS sends a SIP INVITE message in the same SIP session as that of the "Start Chase Play" command sent over the control channel. The SIP INVITE message is a request to establish a unicast channel that will be used to deliver the recorded (time-shifted) content stored in the N-PVR1 system.

17) The SIP INVITE message is transmitted over the ISC and the MMTEL AS.

18, 19 20) The SIP INVITE message is sent to the STB which acknowledges the request with a 200 OK response to accept the unicast channel invitation.

21) The IPTV AS initiates playback of the recorded content by means of a "Play" command to the N-PVR1 system.

22) Unicast delivery of the originally viewed program is started

The above described IMS based method for switching between multicast and unicast delivery of content relies on the IPTV-AS acting as a gateway between the Network PVR system and the STB's so that the network takes an active role in IPTV delivery and permits operators to offer a personalized Triple-Play service. By limiting the amount of content transmitted over the first mile of a broadband connection this frees up available bandwidth for use by other services.

It will be appreciated by the persons skilled in the art that various modifications may be made to the embodiment described above without departing from the scope of the present invention.

CLAIMS:

1. A method of time-shifting and chase-play for an IPTV system, the method comprising:

establishing a control channel between the originating user and a selected IPTV Application Server (IPTV-AS);

sending a start time-shift command to the IPTV-AS over the control channel;

sending a start recording command from the IPTV-AS to a Network PVR system to initiate recording of current multicast content;

when the user is ready to resume viewing of the time-shifted content, sending a start chase-play command to the IPTV-AS over the control channel to establish a unicast channel for playback of the time-shifted content; and

sending a playback command from the IPTV-AS to the Network PVR system to initiate playback of the time-shifted content over the unicast channel.

2. A method according to claim 1, wherein the control channel is set up using standard IMS procedures.

3. A method according to claim 1 or 2, wherein an indication that recording has been started is returned from the IPTV-AS to the originating user.

4. A method according to any one of the preceding claims, wherein a SIP INVITE message is sent from the IPTV-AS to establish the unicast channel for playback of the time-shifted content.

5. A method according to any one of the preceding claims, wherein a SIP INVITE message is sent from the IPTV-AS to the originating user to provide notification of an incoming call.

6. A method according to claim 5, wherein a user decision instruction for handling the incoming call is sent by the originating user to the IPTV-AS.

7. A method according to claim 6, wherein a media plane within the IPTV system is established for speech or multimedia communication in response to the user decision instruction.

8. A method according to claim 6, wherein a separate ISDN/PSTN channel is established for speech in response to the user decision instruction.

9. A method according to claim 6, 7 or 8, wherein the start recording command from the IPTV-AS to the Network PVR system is triggered in response to the user decision instruction.

10. A method according to any one of the preceding claims, wherein an indication that a subscribed-to event is available for viewing is sent from the IPTV-AS to the originating user, and the user is given the option of sending a start time-shift command to the IPTV-AS to initiate recording of current multicast content whilst the subscribed-to event is viewed.

11. A time-shifting and chase-play IPTV system, comprising:

channel control means for establishing a control channel between the originating user and a selected IPTV Application Server (AS);

start time-shift means for sending a start time-shift command to the IPTV-AS over the control channel;

start recording means for sending a start recording command from the IPTV-AS to a Network PVR system to initiate recording of current multicast content;

start chase-play means for sending a start chase-play command to the IPTV-AS over the control channel when the user is ready to resume viewing of the time-shifted content, to establish a unicast channel for playback of the time-shifted content; and

playback means for sending a playback command from the IPTV-AS to the Network PVR system to initiate playback of the time-shifted content over the unicast channel.

12. Computer program code for carrying out the method of any of claims 1 to 10.

Figure 1

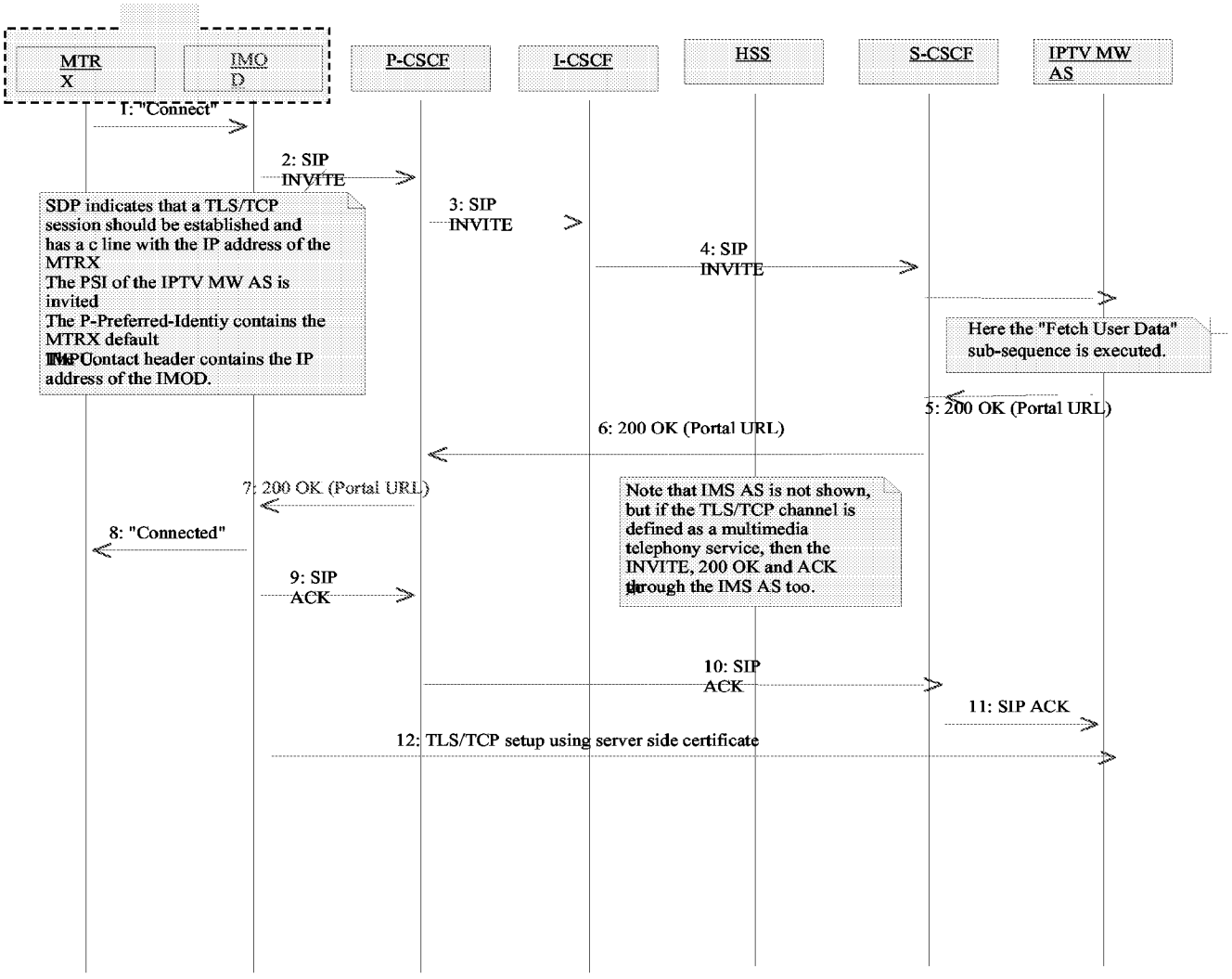

MTRX
IMOD
P-CSCF
I-CSCF
HSS
S-CSCF
IPTV MW AS
1: "Connect"
2: SIP INVITE
3: SIP INVITE
4: SIP INVITE
SDP indicates that a TLS/TCP session should be established and has a c line with the IP address of the MTRX
The PSI of the IPTV MW AS is invited
The P-Preferred-Identiy contains the MTRX default
The Contact header contains the IP address of the IMOD.
Here the "Fetch User Data" sub-sequence is executed.
5: 200 OK (Portal URL)
6: 200 OK (Portal URL)
7: 200 OK (Portal URL)
Note that IMS AS is not shown, but if the TLS/TCP channel is defined as a multimedia telephony service, then the INVITE, 200 OK and ACK through the IMS AS too.
8: "Connected"
9: SIP ACK
10: SIP ACK
11: SIP ACK
12: TLS/TCP setup using server side certificate

Figure 2

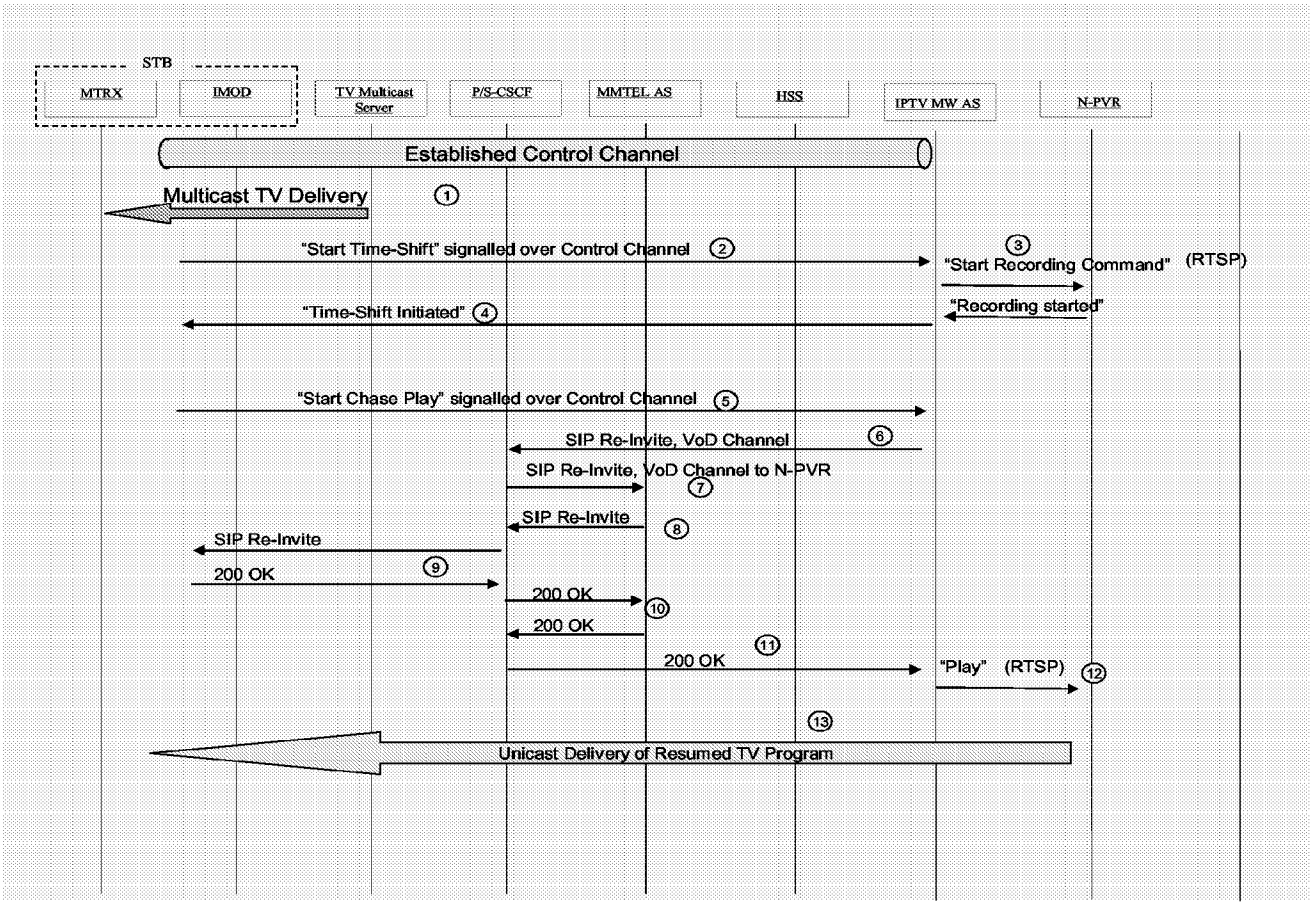

STB
MTRX
IMOD
TV Multicast Server
P/S-CSCF
MMTEL AS
HSS
IPTV MW AS
N-PVR
Established Control Channel
Multicast TV Delivery
1
"Start Time-Shift" signalled over Control Channel
2
3
"Start Recording Command" (RTSP)
"Recording started"
"Time-Shift Initiated"
4
"Start Chase Play" signalled over Control Channel
5
SIP Re-Invite, VoD Channel
6
SIP Re-Invite, VoD Channel to N-PVR
7
SIP Re-Invite
8
SIP Re-Invite
200 OK
9
200 OK
10
200 OK
11
200 OK
"Play" (RTSP)
12
13
Unicast Delivery of Resumed TV Program

Figure 3

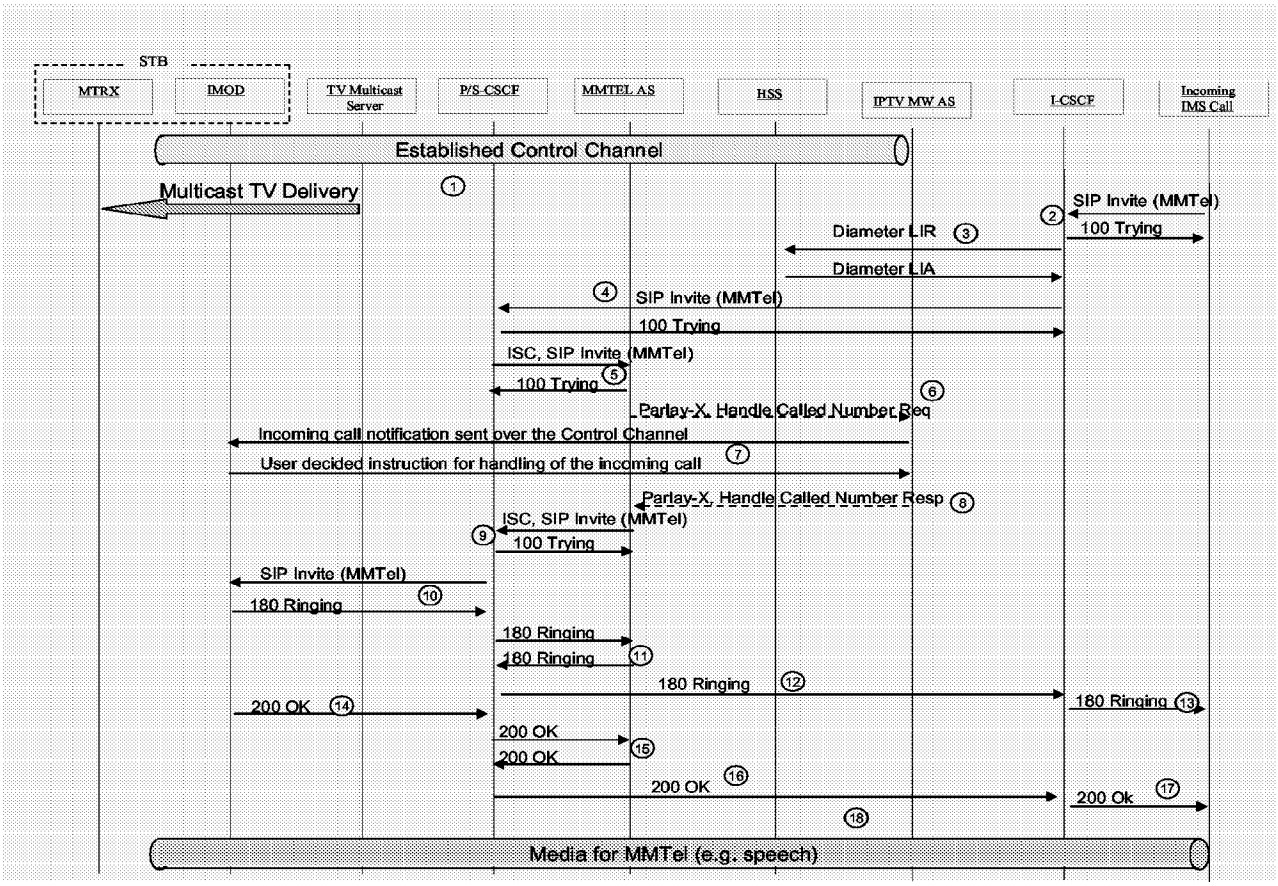

STB
MTRX
IMOD
TV Multicast Server
P/S-CSCF
MMTEL AS
HSS
IPTV MW AS
I-CSCF
Incoming IMS Call
Established Control Channel
Multicast TV Delivery
1
SIP Invite (MMTel)
2
100 Trying
Diameter LIR
3
Diameter LIA
4
SIP Invite (MMTel)
100 Trying
ISC, SIP Invite (MMTel)
5
100 Trying
6
Parlay-X, Handle Called Number Req
Incoming call notification sent over the Control Channel
7
User decided instruction for handling of the incoming call
Parlay-X, Handle Called Number Resp
8
ISC, SIP Invite (MMTel)
9
100 Trying
SIP Invite (MMTel)
10
180 Ringing
180 Ringing
180 Ringing
11
180 Ringing
12
180 Ringing
13
200 OK
14
200 OK
200 OK
15
200 OK
16
200 Ok
17
18
Media for MMTel (e.g. speech)

Figure 4

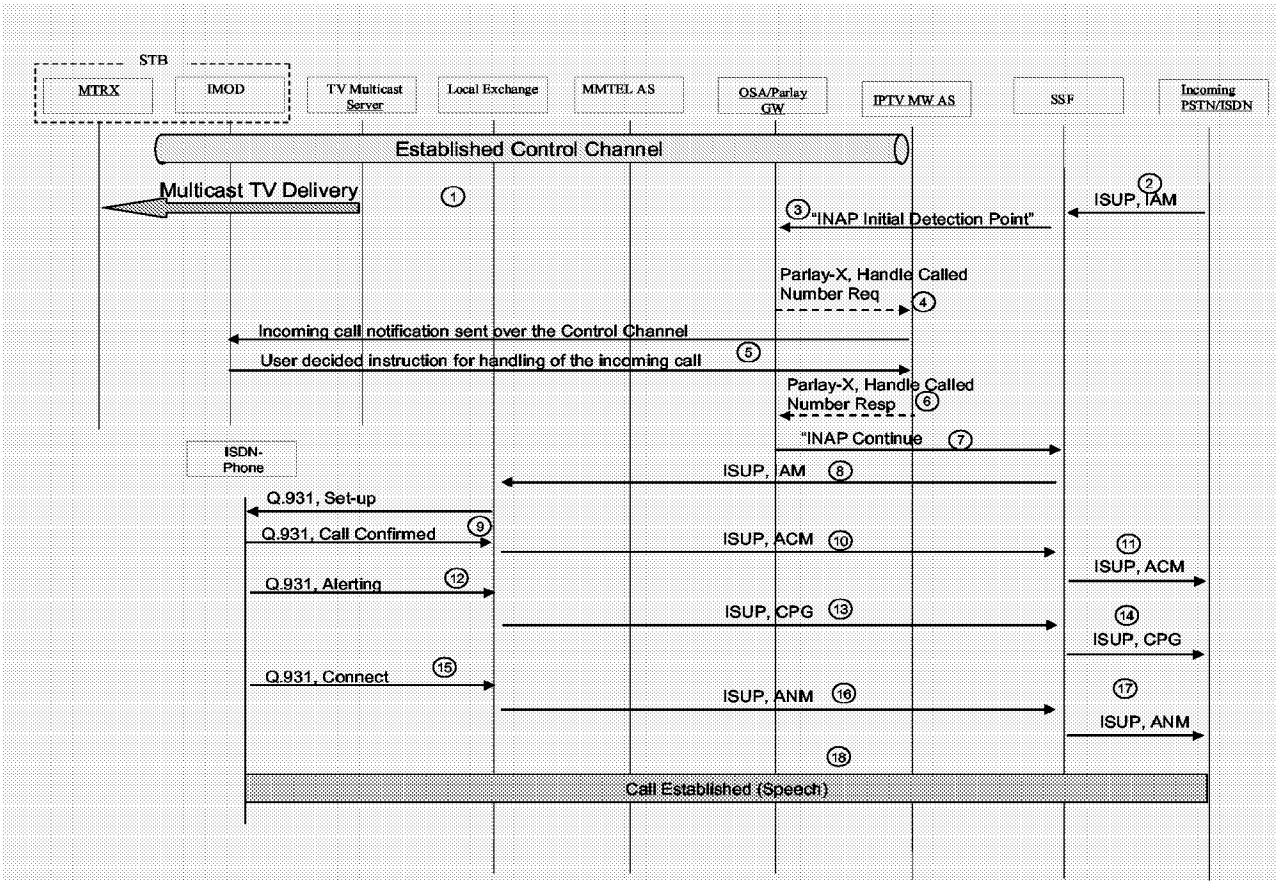
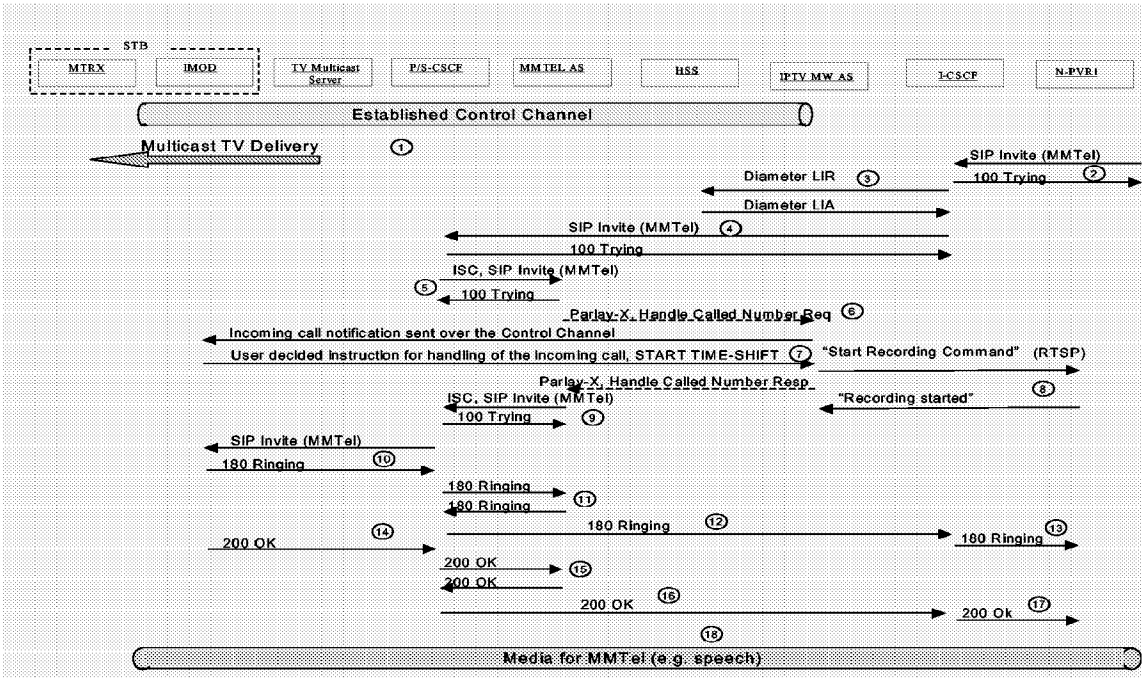

STB
MTRX
IMOD
TV Multicast Server
Local Exchange
MMTEL AS
OSA/Parlay GW
IPTV MW AS
SSF
Incoming PSTN/ISDN
Established Control Channel
Multicast TV Delivery
1
2
ISUP, IAM
3
"INAP Initial Detection Point"
Parlay-X, Handle Called Number Req
4
Incoming call notification sent over the Control Channel
User decided instruction for handling of the incoming call
5
Parlay-X, Handle Called Number Resp
6
"INAP Continue
7
ISDN-Phone
ISUP, AM
8
Q.931, Set-up
Q.931, Call Confirmed
9
ISUP, ACM
10
11
ISUP, ACM
Q.931, Alerting
12
ISUP, CPG
13
14
ISUP, CPG
Q.931, Connect
15
ISUP, ANM
16
17
ISUP, ANM
18
Call Established (Speech)

Figure 5


STB
MTRX
IMOD
TV Multicast Server
P/S-CSCF
MMTEL AS
HSS
IPTV MW AS
I-CSCF
N-PVR1
Established Control Channel
Multicast TV Delivery
1
SIP Invite (MMTel)
100 Trying
2
Diameter LIR
3
Diameter LIA
SIP Invite (MMTel)
4
100 Trying
ISC, SIP Invite (MMTel)
5
100 Trying
Parlay-X, Handle Called Number Req
6
Incoming call notification sent over the Control Channel
User decided instruction for handling of the incoming call, START TIME-SHIFT
7
"Start Recording Command" (RTSP)
Parlay-X, Handle Called Number Resp
8
"Recording started"
ISC, SIP Invite (MMTel)
100 Trying
9
SIP Invite (MMTel)
180 Ringing
10
180 Ringing
180 Ringing
11
180 Ringing
12
180 Ringing
13
200 OK
14
200 OK
15
200 OK
200 OK
16
200 Ok
17
18
Media for MMTel (e.g. speech)

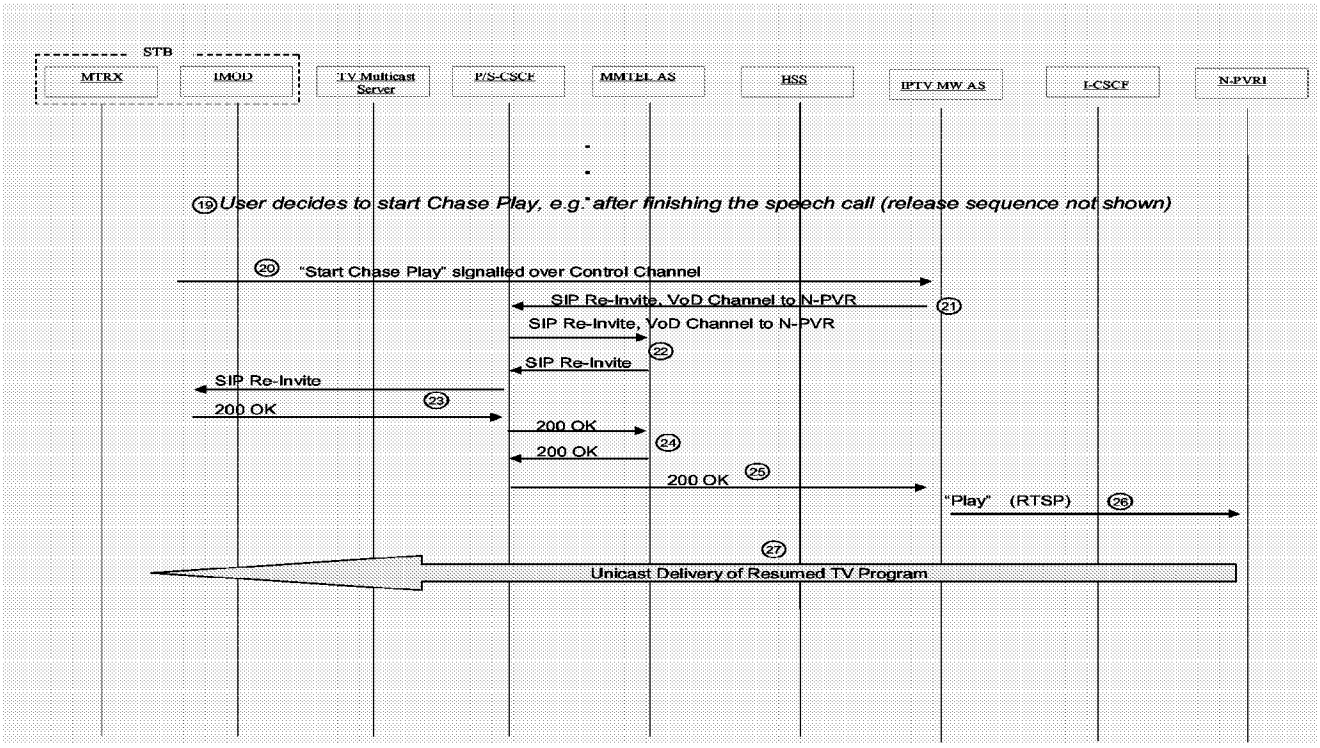
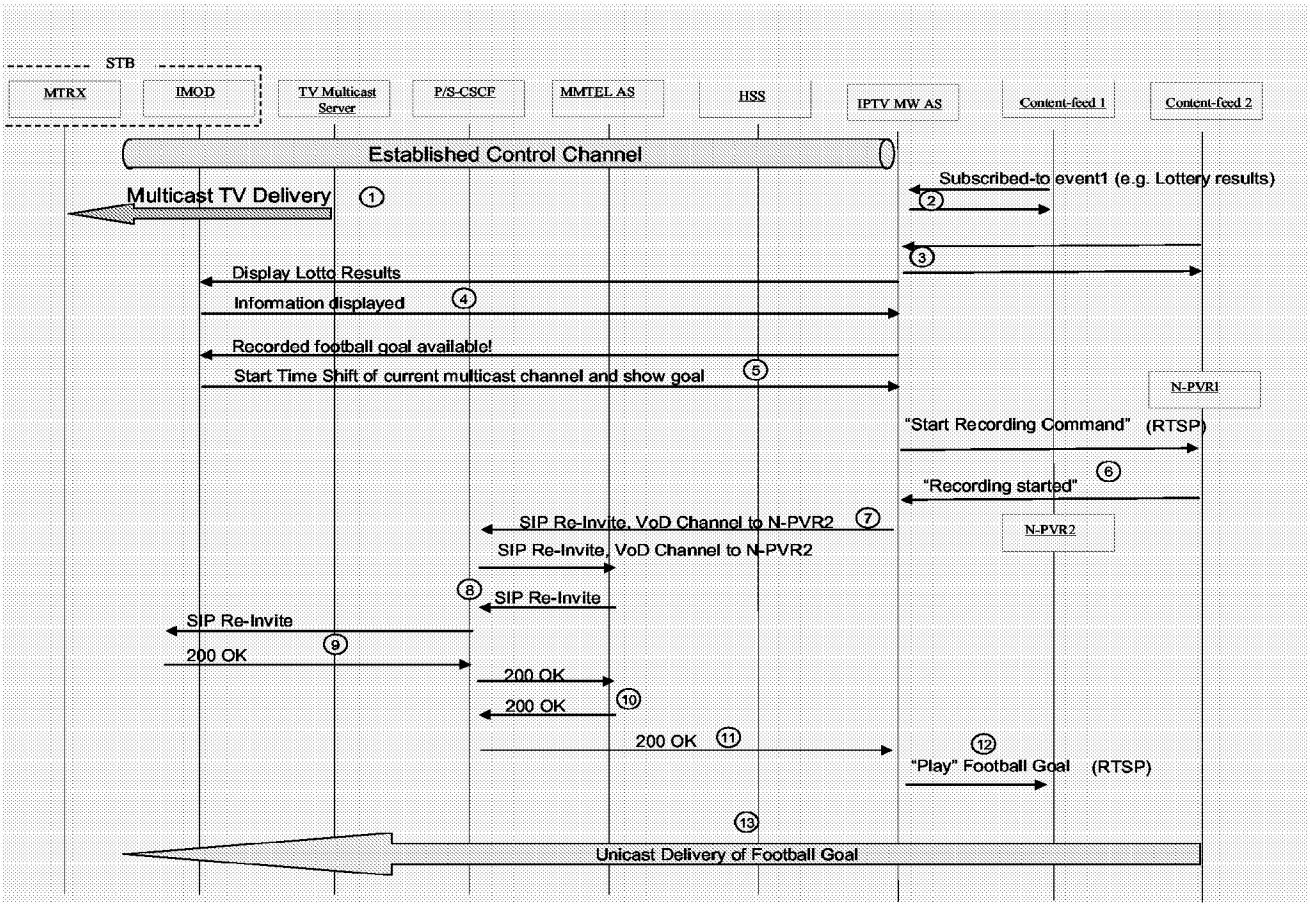

STB
MTRX
IMOD
TV Multicast Server
P/S-CSCF
MMTEL AS
HSS
IPTV MW AS
I-CSCF
N-PVR1
19 User decides to start Chase Play, e.g." after finishing the speech call (release sequence not shown)
20
"Start Chase Play" signalled over Control Channel
SIP Re-Invite, VoD Channel to N-PVR
21
SIP Re-Invite, VoD Channel to N-PVR
22
SIP Re-Invite
SIP Re-Invite
23
200 OK
200 OK
24
200 OK
200 OK
25
"Play" (RTSP)
26
27
Unicast Delivery of Resumed TV Program

Figure 6


STB
MTRX
IMOD
TV Multicast Server
P/S-CSCF
MMTEL AS
HSS
IPTV MW AS
Content-feed 1
Content-feed 2
Established Control Channel
Multicast TV Delivery
1
Subscribed-to event1 (e.g. Lottery results)
2
3
Display Lotto Results
Information displayed
4
Recorded football goal available!
Start Time Shift of current multicast channel and show goal
5
N-PVR1
"Start Recording Command" (RTSP)
6
"Recording started"
SIP Re-Invite, VoD Channel to N-PVR2
7
N-PVR2
SIP Re-Invite, VoD Channel to N-PVR2
8
SIP Re-Invite
SIP Re-Invite
9
200 OK
200 OK
200 OK
10
200 OK
11
12
"Play" Football Goal (RTSP)
13
Unicast Delivery of Football Goal

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2006/060530

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04N7/24 H04N7/173

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)
H04N

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 practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2005/183120 A1 (JAIN SAURABH ET AL) 18 August 2005 (2005-08-18) abstract paragraphs [0008] - [0021] paragraphs [0035] - [0089] figures 1-10	1-4, 10-12 5-9
Y A	US 6 882 709 B1 (SHERLOCK PETER ET AL) 19 April 2005 (2005-04-19) abstract column 6, lines 23-36 figures 1-6	5-9 1-4, 10-12

-/--

[X] Further documents are listed in the continuation of Box C.

[X] 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 document but published on or after the international filing date

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

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
8 November 2006	23/11/2006

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	MARZAL-ABARCA, X

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

Samsung Ex. 1013, Page 589 of 788

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	MAGEDANZ T ET AL: "The IMS Playground @ Fokus - An Open Testebed for Next Generation Network Multimedia Services" TESTBEDS AND RESEARCH INFRASTRUCTURES FOR THE DEVELOPMENT OF NETWORKS AND COMMUNITIES, 2005. TRIDENTCOM 2004. FIRST INTERNATIONAL CONFERENCE ON TRENTO, ITALY 23-25 FEB. 2005, PISCATAWAY, NJ, USA,IEEE, 23 February 2005 (2005-02-23), pages 2-11, XP010774253 ISBN: 0-7695-2219-X the whole document	1-4, 10-12
A	FENG LIU ET AL: "An approach of integrating sip in converged multimodal/multimedia communication services" COMPUTER COMMUNICATIONS AND NETWORKS, 2003. ICCCN 2003. PROCEEDINGS. THE 12TH INTERNATIONAL CONFERENCE ON DALLAS, TX, USA 20-22 OCT. 2003, PISCATAWAY, NJ, USA,IEEE, 20 October 2003 (2003-10-20), pages 137-142, XP010695709 ISBN: 0-7803-7945-4 Section 2.1 Multimedia Technology Integration Platform Section 2.2 Integrating SIP with MTIP	1-4, 10-12
A	FRANZ R ED - INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS: "Control architecture for voice/data convergence" ICC 2001. 2001 IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS. CONFERENCE RECORD. HELSINKY, FINLAND, JUNE 11 - 14, 2001, IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS, NEW YORK, NY : IEEE, US, vol. VOL. 1 OF 10, 11 June 2001 (2001-06-11), pages 758-762, XP010553104 ISBN: 0-7803-7097-1 the whole document	1-4, 10-12
A	J-F REY ET AL: "SIP Technology in the Enterprise: SIP technology will be the next step in IP telephony, bringing new Internet telephony services to enterprise users" ALCATEL TELECOMMUNICATIONS REVIEW, ALCATEL, PARIS CEDEX, FR, October 2002 (2002-10), XP007005899 ISSN: 1267-7167 the whole document	1-4, 10-12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2006/060530

Box 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 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 additional sheet

1. [X] 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 an additional fee, this Authority did not invite payment of any additional fee.

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.:

Remark on Protest

[X] The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4,10,11,12

Time-shifting and chase-play for an IPTV system.

2. claims: 5-9

Voice call handling

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2006/060530

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005183120 A1	18-08-2005	NONE	
US 6882709 B1	19-04-2005	NONE	

PUB-NO: WO2007101473A1
DOCUMENT-IDENTIFIER: WO 2007101473 A1
TITLE: TIME-SHIFTING AND CHASE-PLAY FOR AN IPTV SYSTEM
PUBN-DATE: September 13, 2007

INVENTOR-INFORMATION:

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ASSIGNEE-INFORMATION:

NAME	COUNTRY
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AASTROEM BO	SE

APPL-NO: EP2006060530
APPL-DATE: March 7, 2006

PRIORITY-DATA: EP2006060530W (March 7, 2006)

INT-CL (IPC): H04N005/00

EUR-CL (EPC): H04N005/00

US-CL-CURRENT: 348/E5.008 , 348/E7.071

ABSTRACT:

Time-shifting and chase-play is provided for an IPTV system, utilising a control channel established between the originating user and a selected IPTV Application Server (IPTV-AS). When time shifting of the IPTV content is required, for example due to receipt of a telephone call, a start time-shift command is sent to the IPTV-AS over the control channel. A start recording command is then sent from the IPTV-AS to a Network PVR system to initiate recording of the current multicast content. Subsequently, when the user is ready to resume viewing of the time-shifted content, a start chase-play command is sent to the IPTV-AS over the control channel to establish a unicast channel for playback of the time-shifted content; and a playback command is sent from the IPTV-AS to the Network PVR system to initiate playback of the time-shifted content over the unicast channel. Such a solution utilizes the standardized IMS communication system and its network architecture and a PVR residing in the Network to limit the traffic transmitted over the first mile connection to a home.

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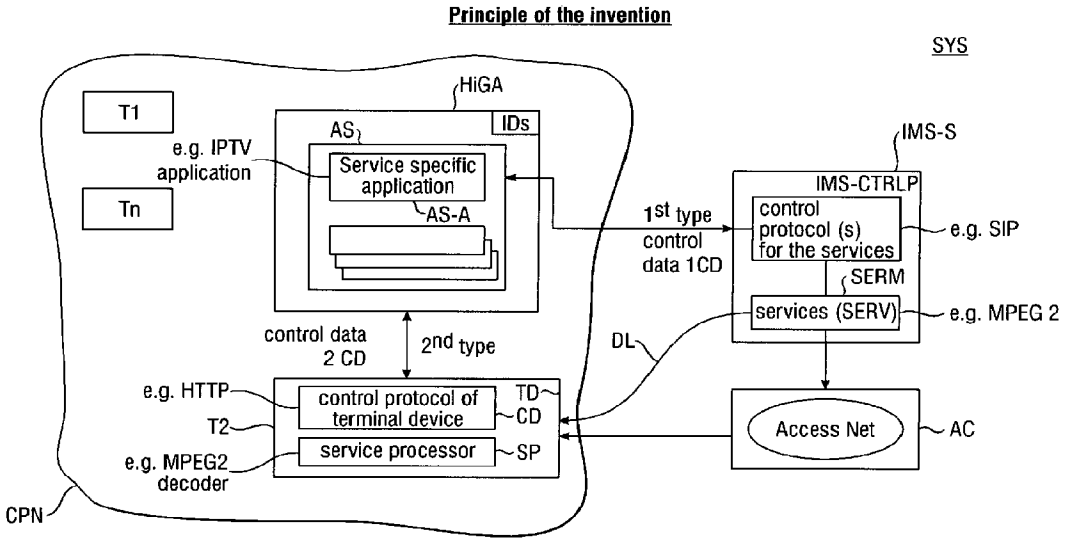
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Declaration under Rule 4.17:
— *of inventorship (Rule 4.17(iv))*

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: IMS SERVICE PROXY IN HIGA



(57) Abstract: The present invention relates to a communication system (SYS), a gateway apparatus (HiGA) and a method for allowing services of a first type provided by a communication server (IMS-S) to be provided to terminal devices (T1, T2, ... Tn ... TN) of a home network (CPN) independent of the fact whether the terminal devices are of a first type or a second type (IMS-based or non-IMS-based). The gateway apparatus (HiGA) comprises one or more service-specific mapping applications (AS) for adapting the control plane (SIP) used between the second type terminal devices (T2) to the control plane (HTTP) used between the gateway apparatus (HiGA) and the communication sever (IMS-S).

WO 2007/140834 A1

IMS SERVICE PROXY IN HiGA

TECHNICAL FIELD

The present invention relates to a communication system, a communication method and a gateway apparatus which allow terminal devices of the communication system to access and use services provided by a service providing server of the communication system.

In particular, the present invention relates to a situation in which the service providing server provides services having application-specific attributes which cannot be resolved by standard terminal devices. That is, the invention relates to a situation in which the service providing server is of a first type and the communication system may comprise first type terminal devices as well as second type terminal devices. The first type terminal devices will understand and resolve control data associated with services provided by the first type service providing server. However, there are also second type terminal devices which will not be able to understand and resolve the first type control data associated with the services having application-specific attributes (service-specific features) provided by the first type service providing server.

BACKGROUND

Fig. 1a shows a communication system SYS for illustrating the background and the problems to be solved by the invention. In

Fig. 1a a home network (Customer Premises Network) CPN comprises a number of terminal devices T1, T2, ... Tn ... TN. The home network CPN may be connected to a service network which is denoted with IMS-N in Fig. 1a. In the home network CPN or the connected service network IMS-N there is arranged a service providing server IMS-S which provides specific services to the terminal devices T1, T2, ... Tn ... TN, e.g. in an IMS type communication system VoIP, video conferencing and IPTV.

The access procedure and delivery procedure is provided by a gateway apparatus which is denoted with HiGA in Fig. 1a. In response to an access message AC from a terminal device, e.g. T1, to the gateway apparatus HiGA, the service providing server IMS-S will deliver the requested service by means of a delivery message DL forwarded by the gateway apparatus HiGA. Normally, if the service providing server IMS-S and the terminal devices T1, T2, ... Tn ... TN are of the same "type", then there will be no problems in the accessing and provision (delivery) of the services of the service providing server IMS-S, even if the services also have application-specific attributes associated with them. However, if the service providing server IMS-S is of a first type and the terminal device is of a second type incapable to understand the specific first type control data (application-specific attributes) associated with the services, then only the services provided by the service providing server IMS-S can be delivered to the second type terminal device but there is no possibility that first type control data associated with the service is decoded and used in the second type terminal device. Hereinafter, to further illustrate this aspect, a more specific example relating to IMS services will be explained also to Fig. 1b, 1c.

The examples in Fig. 1c, 1b, 1c are for a case in which the gateway apparatus is formed by a HiGA (Home IMS GAteway) and the terminal device T1 (first type terminal device) is a SIP

device (SIP: Session Initiation Protocol), and the terminal device T2 (second type terminal device) is a non-SIP device. As explained before, the HiGA is a functional block (gateway) residing in the home network CPN which thus enables SIP and non-SIP terminal devices to access IMS-based services provided from by the service providing server IMS-S. IMS-based services may include communication services such as VoIP (Voice over IP) and video conferencing, as well as other multimedia services, such as IPTV, as also indicated in Fig. 1a.

One of the characteristics of for example IPTV offered as an IMS service is that it allows a personalisation of TV content delivered to end users, for example the delivery of personalized advertisements based on user identity and preference. For this purpose, the HiGA maintains a user profile in a user profile memory UP-MEM shown in Fig. 1b. Such a user profile may for example be stored in the exchange portion EX of the gateway device HiGA shown in Fig. 1c. A user profile is maintained for every subscription which is linked to an IMS service identity. For example, as shown in Fig. 1b, each user identity (USER-ID) is associated with a specific preference (control information) and service identification IMS-ID. For example, different TV programs may be available to each individual user in their EPG (Electronic Program Guide) such as, as shown in Fig. 1b, ID1="dad"/control info="sports"; ID2="son"/control info="movies and kids programs" and IDn="mother"/control info="advertisements". IF such specific preferences (control info) are indicated, the HiGA will make sure that the requested service is delivered to the user (terminal device) in a personalised way by means of the control information.

For example, if a first type terminal device T1 sends a service delivery request including a user-ID=ID2, then HiGA will know that a personalized electronic program guide EPG2 is to be retrieved from the service providing server IMS-S

and HiGA will send a request for EPG2 to the server IMS-S. Alternatively, if the server IMS-S includes a user-specific preference mapping table mapping between user identity ID and control information IMS-CTRL, as shown in Fig. 1c, it may be sufficient if the first type terminal device T1 merely sends its user-ID ID1 (first tape control information) to the server IMS-S through the HiGA and the server IMS-S will return the first type control information (control data) to the first type terminal device T1 which is capable of decoding and using the provided first type (personalized, i.e. user and service-specific) control information EPG1 In this way, personalised content can be delivered to a specific subscription and hence to a specific user, provided that the terminal device and the server run the same (first type) control protocol. Typically, in a communication system having an IMS server IMS-S, both the terminal device T1 and the server IMS-S run the same SIP control protocol and can therefore "talk" to each other using this protocol.

Whilst HiGA provides essentially an IMS-SIP proxy (exchange) functionality for providing IMS communication services to both SIP and non-SIP (e.g. UPnP (Universal Plug and Play)) home devices, the IMS system, i.e. the application server IMS-S in the home network CPN or in the interconnected services network IMS-N, provides a multitude of multimedia services, as shown in Fig. 1a, including IPTV, VoIP, video conferencing etc. and typically such IMS services could have application (service)-specific attributes (control information) which cannot be used and understood by standard terminal device T2 running a different second control protocol, as indicated in Fig. 1a. For example, the IPTV service might have application-specific attributes such as EPG (Electronic Program Guide) and service triggers. A voice over IP service may have specific attributes in terms of specific adverts or music. If the end terminal device is also an IMS-based terminal device, then of course there is no problem to deliver the application (service)-specific

attributes associated with this service to a (first type SIP) terminal device T1. However, there is a problem if the terminal device is of a different type (second type), i.e. non-IMS-based, because in this case the application-specific attributes (control information) associated with this IMS-based service cannot be "understood" by the control protocol of a non-IMS-based first type terminal device T2. This problem does not only relate to the more sophisticated provision of personalized content from the server IMS-S but even to a simple request scenario.

For example, the first terminal device T1 may be capable of decoding a delivered MPEG2 stream by means of a service processor SP (MPEG2 decoder). However, it may use a HTTP (first type) control protocol for requesting this MPEG2 service from the server IMS-S. If the server IMS-S runs a second control protocol, for example SIP, then the first terminal device T1, not supporting IMS SIP, can not access media at the server IMS-S with the HTTP request. Another example is if the first terminal device T1 requests a service, e.g. a video streaming, requiring a certain bandwidth (certain resources) in the access network and the access network is incapable to provide the required resources. Since the first and second control protocols are different, the terminal device will not be capable e.g. to negotiate with the server IMS-S that a certain lower bandwidth is acceptable for a video streaming with e.g. lower quality.

Many off-the-shelf terminal devices T2, such as for example a simple standard Set-Top-Box STB, running simple request messages without having assigned to them specific user-IDs, are only capable to decode or run the service, but they are not capable to provide any user-specific features, i.e. they are "blind" and simply run the service in a user-unrelated fashion.

SUMMARY

As explained above, there is a problem in that some second type terminal devices T2 are incapable to exchange with the server IMS-S first type control information (control data) associated with a service to be provided because the control protocols of the server IMS and the second type terminal devices T2 are different.

Therefore, the object of the present invention is to provide a communication system, a communication method and a gateway apparatus for allowing second type terminal devices running a second type control protocol to execute services in association with first type control information provided by a first type service providing server.

This object is solved by a communication system, comprising a gateway apparatus, a plurality of terminal devices and a service providing server for providing services to said terminal devices through an access network, wherein said service providing server comprises a service memory for storing one or more services to be provided to said terminal devices, and at least one control protocol device of a first type providing first type control data in association with said one or more services to said gateway device; wherein said terminal devices each comprise a service processor for processing the service provided by said service providing server through said access network and a control protocol device of a second type, different to said first type and providing second type control data in association with the execution of the service by said service processor to said gateway device; and wherein said gateway apparatus comprises one or more service-specific mapping devices for exchanging first type control data with said service providing server and second type control data with said terminal devices wherein said service-specific mapping devices provide to said service providing server first type control data on the basis

of second type control data received from said terminal devices and receive first type control data from said first type control protocol device of the service providing server; and said service-specific mapping devices provide to said terminal devices second type control data on the basis of said first type control data received from said service providing server and receive said second type control data from said second type control protocol device of said terminal devices.

Furthermore, this object is solved by a gateway apparatus of a communication system including a plurality of terminal devices and a service providing server for providing services to said terminal devices through an access network, wherein said service providing server comprises a service memory for storing one or more services to be provided to said terminal devices, and at least one control protocol device of a first type providing first type control data in association with said one or more services to said gateway device, wherein said terminal devices each comprise a service processor for processing the service provided by said service providing server through said access network and a control protocol device of a second type, different to said first type and providing second type control data in association with the execution of the service by said service processor to said gateway device, comprising one or more service-specific mapping devices for exchanging first type control data with said service providing server and second type control data with said second type terminal devices, wherein said service-specific mapping devices provide to said service providing server first type control data on the basis of second type control data received from said terminal devices and receive first type control data from said first type control protocol device of the service providing server; and said service-specific mapping devices provide to said terminal devices second type control data on the basis of said first type control data received from said service providing server and

receive said second type control data from said second type control protocol device of said terminal devices.

Furthermore, this object is solved by a communication method between a gateway apparatus, a plurality of terminal devices and a service providing server of a communication system for providing services to said terminal devices through an access network, wherein said service providing server comprises a service memory for storing one or more services to be provided to said terminal devices, and at least one control protocol device of a first type providing first type control data in association with said one or more services to said gateway device, wherein said terminal devices each comprise a service processor for processing the service provided by said service providing server through said access network and a control protocol device of a second type, different to said first type, and including second type control data in association with the execution of the service by said service processor, and wherein said gateway apparatus comprises one or more service-specific mapping devices for exchanging first type control data (1CD) with said service providing server and second type control data with said terminal devices, comprising the following steps of providing from at least one of said terminal devices to said gateway apparatus second type control data, providing from said service-specific mapping devices of said gateway apparatus to said service providing server first type control data on the basis of said second type control data provided from said terminal device; providing first type control data from said first type control protocol device of said service providing server to said gateway apparatus, and providing from said service-specific mapping devices to said terminal device second type control data on the basis of said first type control data provided from said service providing server.

According to the invention, there is the special advantage that there are service-specific features in e.g. the HiGA

gateway device for providing the necessary gateway functionality between e.g. IMS-based application (communication) servers and non-IMS terminal (home) devices. Hence, standard terminal devices can also be provided with some kind of personalized control information.

Preferably, said service-specific mapping devices comprise at least one service-specific mapping device running an IPTV proxy application.

Further preferably, said second type control data constitute a second type service request and said service specific mapping device sends as first type control data a first type enquiry request enquiring the service providing server whether said access network has enough resources to provide said service to the terminal device; wherein said service providing server sends as first type control data an acknowledgement message indicating that there are enough resources for the service provision if the service providing service establishes that there enough resources, and sends as first type control data a negative acknowledgement message indicating that there are not enough resources for the service provision if the service providing server establishes that there not enough resources.

Further preferably, said terminal device comprises a Set-Top-Box including as service processor an MPEG2 decoder, said service providing server comprises in said service memory as service a VoD (Video on Demand) service, said service-specific mapping devices comprise at least one service-specific mapping device running a RTSP proxy application and said control protocol is RTSP, and said resources are the bandwidth of lines in said access network.

Further preferably, said gateway apparatus and said terminal devices are part of a customer premises network.

Further preferably, said gateway apparatus is located in a residential gateway of said customer premises network.

Further preferably, said gateway apparatus receives as said second type first control data from said terminal device an EPG download request and said second type control data provided by said gateway apparatus comprises a personalized EPG (Electronic Program Guide).

Further preferably, said gateway apparatus comprises in a memory said user identity.

Further preferably, said user identity is stored on a plug-in inserted into said gateway apparatus or on an UICC card inserted into a memory of said gateway apparatus.

Further preferably, said terminal device is one or more selected from the group comprising a set-top-box, a controller of a heating system, a surveillance system in the home, a camera or a central home controller of an intelligent house.

Further preferably, said first type of said control data is SIP (Session Initiation Protocol) and said second type of said control data is one of HTTP or UPnP.

Further preferably, said gateway apparatus receives from said service providing device as first type control data said downloaded EPG of first type and converts a format of said received EPG into a format supported by said terminal device.

Further preferably, said gateway apparatus invokes a media session establishment between the terminal device and said service providing device.

Further preferably, said media session establishment is a unicast media session establishment.

Further preferably, said media session establishment is a multicast media session establishment.

Further preferably, said gateway apparatus receives as first type control data an EPG update message.

Further preferably, said gateway apparatus receives as first type control data an event trigger message and sends as second type control data a media session establishment message to said terminal device on the basis of said event trigger message.

Further advantageous embodiments and improvements of the invention are listed in the dependent claims. However, it should be noted that the invention also comprises features and steps which have been separately described in the claims, the drawings and the description. Therefore, the invention also comprises embodiments which are based on combinations of such features and steps.

Hereinafter, the invention will be explained with reference to the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

Fig. 1a is an overview of a communication system SYS in accordance with the prior art;

Fig. 1b shows a user profile in a user profile memory UP-MEM which lists specific preferences for specific required services in connection with a specific user ID, in accordance with the prior art;

Fig. 1c shows a request scenario if a first type terminal device T1 requests personalized content in the form of a personalized electric program guide EPG1 from the server IMS-S, in accordance with the prior art;

Fig. 2a shows a block diagram of a communication system SYS in accordance with the invention;

Fig. 2b shows a first specific service provision example for the provision of IPTV in connection with a personalized electric program guide EPG;

Fig. 2c shows a second specific service provision example for the provision of an MPEG2 stream in case that the requesting control protocol of the second terminal device T2 and the control protocol of the server IMS-S are different, in particular also the negotiation of resources RES for the access network AC;

Fig. 2d shows a block diagram of a communication system SYS and a gateway device HiGA for the specific case of an IMS server and an IPTV service provision;

Fig. 3 shows a flowchart of the communication method of the invention;

Fig. 4 shows an embodiment and examples of the invention for the special case of a HiGA with an application space for IPTV, as shown in Fig. 2d, wherein

Fig. 4a shows an example flow chart of the media session initialisation in the STB in connection with the IPTV service;

Fig. 4b shows an example flow chart of a unicast session establishment in connection with the IPTV service;

Fig. 4c shows an example flow chart of a multicast session establishment in connection with the IPTV service;

Fig. 4d shows an example flow chart for EPG updates in connection with the IPTV service; and

Fig. 4e shows example triggers for personalised content in connection with the IPTV service.

DETAILED DESCRIPTION

Hereinafter, first the principle of the invention will be described with reference to Fig. 2a which is a block diagram of a communication system SYS in accordance with the invention. It comprises a gateway apparatus HiGA, a plurality of terminal devices T1, T2, ... Tn ... TN and a service providing server IMS-S for providing services SERM to said terminal devices T1, T2, ... Tn ... TN through an access network AC.

As shown in Fig. 2a, the service providing server IMS-S comprises a service memory SERM for storing one or more services SER1, SER2, SER3 to be provided to said terminal devices T1, T2, ... Tn ... TN. Although the server IMS-S is shown in Fig. 2a to be simply connected to the HiGA, the server IMS-S may also be located in a separate service provision network IMS-N, as shown in Fig. 1a. The service providing server IMS-S runs a control protocol IMS-CTRLP which is provided by a control protocol device. An example for the control protocol is SIP. This type of protocol will be referred to as the "first type" protocol which provides first type SIP control data CS "in association" with one or more services SERV. Each service in the service memory SERM may have its own control protocol, or a single control protocol can be provided for all services. The services may for example be an IPTV provision (MPEG2 stream provision), a VoIP service, video conferencing, IPTV, as already shown in Fig.

1a and described above. One control protocol may be SIP, however, also other control protocols can be used.

The meaning of "in association" may be understood with reference the example in Fig. 2b which is explained with further details below. Here, the service is IPTV and the control data (first type control data) are user-specific electronic program guides EPG1, EPG2, ... EPGn. However, the control data or control information of the first type may simply be a trigger to run a specific service, the provision of an HTML page in connection with IPTV etc. Therefore, somehow the control protocol(s) are "associated" or related to the specific service or specific services. The services can either be provided directly to the second type terminal device T2 through a link DL or by means of an access network AC, as shown in Fig. 2a. Alternatively, there is also the possibility to route the service provision through the gateway apparatus HiGA itsef.

In Fig. 2a, the terminal devices T1, T2, ... Tn ... TN comprise first type terminal devices T1, Tn and second type terminal devices T2, wherein said terminal devices T1, T2, ... Tn ... TN each comprise a service processor SP for processing the service SERV provided by said service providing server IMS-S through said access network AC or through said direct link DL. Whilst the first type terminal devices T1, Tn comprise a control protocol device of the first type providing first type control data in association with the execution of the service by said service processor SP to said gateway device HiGA, the second type terminal devices T2 comprise a control protocol device of a second type, different to said first type and providing second type control data in association with the execution of the service by said service processor SP to said gateway device HiGA. This means, that the first type terminal devices T1, Tn are capable of performing and communicating directly with the server IMS-S, as shown in Fig. 1c.

For example, the first type terminal devices T1, Tn may comprise the features of a user-identity which is one of the control data belonging to the first type control protocol. On the other hand, the second type terminal device may be a standard Set Top Box STB which simply comprises a service processor SP for running for example an MPEG2 stream. Thus, as such the second type terminal device will only understand some kind of control data of the second type, however, will be "blind" to any control information of the first type coming from the first type control protocol of the server IMS-S. This means, that the second type terminal device T2 does not understand any control information of the first type. For example, if the second terminal device T2 is simply a Set Top Box STB, it simply runs the TV service, however, it has not the capability of requesting or being provided with personalized electronic program guide as control data.

Although in Fig. 2a, the communication system SYS is illustrated with the gateway apparatus HiGA communicating with both the first and second type terminals T1, Tn & T2, respectively, it should be understood that the invention concentrates on those features necessary in the HiGA for communicating with the second type terminals T2, i.e. those which operate using a different protocol (device) to that used in the service providing server. For communication with the first type terminals, obviously the special features of the invention are not necessary since the first type terminals runs the same protocol as the service providing server.

The gateway apparatus HiGA is similarly arranged as in Fig. 1c or 1a, i.e. it acts as a kind of proxy between the server IMS-S and the terminal devices T1, Tn, T2. However, in accordance with the invention and as shown in Fig. 2a, the gateway apparatus HiGA comprises a kind of service abstraction layer between service-specific applications

running on non-IMS home devices and the services provided by the IMS application servers. This application space AS of the gateway apparatus HiGA comprises one or more service-specific mapping devices AS-A. This kind of application space is intended to be a common application execution environment for different types of service-specific applications. The service-specific applications in the application space essentially adapt the service-specific control plane to the control plane native to the target second terminal devices T2. One can say that the application space is an environment where plug-ins supporting different devices (set of functions) and protocols are placed. Thus, for each of the services SERV to be provided by the server IMS-S, the gateway apparatus HiGA comprises a service-specific mapping device AS-A.

In Fig. 2a, as an example, an IPTV mapping device is indicated. Thus, the gateway device HiGA assumes support for application-specific logic based in the HiGA. The control plane is terminated in the gateway apparatus HiGA which has the function of mapping this to the native control plane of the second type terminal device T2. Hence, the gateway apparatus HiGA acts as the IPTV server proxy to the second terminal device T2. One could say, that the application space AS in the gateway apparatus HiGA is a place-holder for modules terminating application-specific data from the IMS IPTV AS in case of an IPTV application, as shown in Fig. 2a. As also shown in Fig. 2a, separately the media plane from the IMS content server IMS-S is terminated directly in the second terminal device T2, as explained before.

The gateway apparatus HiGA could functionally be located in a residential gateway or in a master STB(M STB). This allows for the existence of multiple STBs (slave STBs) in the home environment which are connected to one master device handling the IMS control plane on their behalf. Typically, considering an IPTV application environment, the second terminal device

T2 may be a standard Set Top Box STB, and the gateway device HiGA may be located in the same home or in the residential gateway.

Preferably, the identity of the user may be pre-stored in a memory in HiGA and can thus be presented to the IMS server. For example, a general mobile phone card (UICC or Universal Integrated Circuit Card) with the user ID can be presented to the HiGA. This card could host a number of applications such as the USIM or the ISIM. Thus, the user identity may also be an IMSI which is a unique number associated with the mobile subscription and is part of the part of the USIM which runs on the "mobile phone card". Also a smart card may be inserted, just as in modern devices like a STB with a smart card. Furthermore and as shown in Fig. 1b, the HiGA may maintain a user profile in a user profile memory UP-MEM. Such a user profile may for example be stored in the exchange portion EX of the gateway device HiGA shown in Fig. 1c. A user profile may be maintained for every subscription which is linked to an IMS service identity. For example, as shown in Fig. 1b, each user identity (USER-ID) is associated with a specific preference (control information) and service identification IMS-ID. For example, different TV programs may be available to each individual user in their EPG (Electronic Program Guide) such as, as shown in Fig. 1b, ID1="dad"/control info="sports"; ID2="son"/control info="movies and kids programs" and IDn="mother"/control info="advertisements". IF such specific preferences (control info) are indicated, the HiGA will make sure that the requested service is delivered to the user (terminal device) in a personalised way by means of the control information.

Hereinafter, the application space AS with its service-specific mapping devices AS-A (one for each service to be provided) will be described with further details. As shown in Fig. 2a, the principal function of the mapping device AS-A is to exchange first type, e.g. SIP, control data with the

service providing server IMS-S and to exchange second type, e.g. non-SIP, control data with said second type, e.g. non-SIP, terminal device T2. That is, the HiGA, acting as a proxy for the second terminal device T2, communicates with the server IMS-S using the first type server control protocol, and it communicates with the second terminal device T2 using the second type control data. An example should illustrate this.

Assume for example that the second terminal device T2 is a standard Set Top Box STB. It will have the capability to run for example an MPEG2 stream by means of a MPEG2 decoder in the service processor SP. It may also have a simple "first type" control protocol which may only comprise the making of a simple request to run or request an MPEG2 stream or an IPTV service. Furthermore, the STB can also receive a general electronic program guide EGP but it cannot receive it or request it in a user-specific manner. The user-specific functionality is taken over by the HiGA serving as a proxy for the STB. The HiGA can request and can be provided with user-specific control information, e.g. with a personalized electronic program guide EGP.

The "exchanging" of first type control data with the IMS-S server and second type control data with the second terminal device T2 also includes a correlation or mapping between the first type and second type control information. More specifically, the service-specific mapping device AS provides to the service providing server IMS-S first type SIP control data on the basis of second type, i.e. non-SIP, control data received from said second type terminal device T2, and it receives first type control data from said first type control protocol device IMS-CTRLP. In turn, the service-specific mapping device AS-A provides to said second type terminal device T2 second type, i.e. non-SIP, control data on the basis of said first type control data received from said service-providing server IMS-S, and it receives the second

type control data from said second type control protocol device TD-CP of the second terminal device T2.

Thus, one can say that in the upward direction, i.e. terminal device T2→IMS-S server, the first type control data provided by the HiGA is based on second type control data received from the terminal device T2. In turn, in the "downward" direction, e.g. from the server IMS-S to the second terminal device T2, the second type control data provided by the HiGA device to the second terminal device T2 is based on the received first type control data from the server IMS-S. This relating - i.e. "on the basis" - or correlation of control data of the first and second type, performed by the gateway apparatus HiGA, can be considered to be a kind of "mapping", and therefore the device AS-A and the gateway device HiGA is denoted as "mapping device". Two simple examples in Fig. 2b and Fig. 2c will further highlight the "mapping" function for the control plane adaptation.

Fig. 3 shows a flowchart of an embodiment in accordance with the communication method of the invention, using a gate apparatus HiGA in a home network as explained above with reference to Fig. 2a. As illustrated in the flowchart in Fig. 3, generally the application space within the HiGA exchanges control messages 1CD of the first type between the server side IMS-S and the gateway apparatus HiGA whilst the second type control messages 2CD are exchanged between the second type terminal device T2 and the gateway apparatus HiGA.

In particular, as shown with step 1: $2CD_1$, a control message may be issued from the second type terminal device T2 to the HiGA. It is received in the HiGA and an associated (mapped) request message of a first type in step 2:$1CD_1$ is sent from the HiGA to the server side IMS-S. This message $1CD_1$ is - as explained above - based on the request message $2CD_1$. For example, as will be explained below, the control message may

have its control format or control type adapted or converted (see e.g. the EGP conversion of the EGP format in Fig. 4a).

Likewise, when sending a control message in step3: $1CD_2$ of the first type from the IMS-S server side to the HiGA, a corresponding or associated message in step 4:$2CD_2$ which is based on the first message $1CD_2$ can be provided to the second terminal device T2. Thus, the respective messages 1CD of the first type between the server side IMS-S and the HiGA are respectively based on messages 2CD of the second type between HiGA and the second terminal device T2.

As explained above with reference to Fig. 2a, the provision of the HiGA, in particular the provision of proxy applications (service-specific mapping devices) relating to specific services in the HiGA, enables standard off-the-shelf terminal devices T2 of the second type to assume a functionality which would normally only be capable to be carried out by first type terminal devices.

The example in Fig. 2b relates to the example shown in Fig. 1c which is the illustration of first terminal devices communicating with a first type server IMS-S. Just as in Fig. 1c, Fig. 2b comprises as an example service the IPTV service in the IMS-S server. It also comprises as first type control information the example of personalized electronic program guides EPG1, EPG2, EPG3 associated with user identities ID1, ID2, … IDn. Since the gateway apparatus HiGA is for example installed in the home of a user or has a user-plug-in with an identity ID1, the gateway apparatus HiGA, more specifically the service-specific mapping device running an IPTV proxy application AS-A(IPTV), can provide user-specific requests (control information) to the server IMS-S.

In the terminal device T2 there is a service processor SP for executing the IPTV service and an EPG request device CP which simply outputs a request for an EGP to the gateway apparatus

HiGA as a request message $2CD_1$. Thus, the terminal device T2 can make a request for an electronic program guide EGP and will be provided with some EGP information in the return message $2CD_2$. However, the terminal device T2 - being "blind" to user-personalized control data - will simply accept the electronic program guide EGP without knowing that it has been personalized by the intermediary (proxy) of the mapping device running the IPTV proxy application AS-A(IPTV). That is, after receiving a request message for EGP, the mapping device running the IPTV proxy application AS-A(IPTV) generates a request for personalized EGP information for the user with the user-ID ID1 by sending a request message $1CD_1$ including the user-identity ID1 inserted from the gateway apparatus HiGA or from the user-specific plug-in. Thus, one can say that the request message $1CD_1$ (a control information request message) is "based" on the request message $1CD_1$ because it generally still relates to the requesting of EGP information, only in a more user-specific way having been upgraded or supplemented with the user-identity ID1.

On the basis of $1CD_1$ the server IMS-S will return user-personalized electronic program guide information EGP1 in the return message $1CD_2$. Although the second terminal device T2 does not know that the electronic program guide information EGP which is returned in the return message $2CD_2$ is a user-specific electronic program guide information EGP1, in fact the electronic program guide information which is provided to T2 is indeed user-personalized because it has been requested in a user-personalized way from the HiGA proxy to the IMS-S server and it has been returned in a user-specific way to the HiGA. Thus, the return information EGP1 in the return message $2CD_2$ is also "based" or "correlated", i.e. mapped, from the return message $1CD_2$ containing the electronic program guide EGP1. Thus, the communication scenario in Fig. 2b comprises the exchange of first type and second type control information which are respectively "based" on each other.

Fig. 2c shows another example of the "mapping function" of the mapping device for the example of an MPEG2 service stream provision. In Fig. 2c an MPEG2 stream is decoded by an MPEG2 decoder in the service processor SP. In Fig. 2c the return messages $2CD_2$ and $1CD_2$ merely extend to the provision of an acknowledgement ACK. However, as shown in Fig. 2c, the protocols run by the second terminal device T2 and by the IMS-S server are different, i.e. the request message $2CD_1$ for having an MPEG2 service provided by the service provider IMS-S is a HTTP or RTSP request whilst the request issued by the gateway apparatus HiGA is a SIP request in the message $1CD_1$. Thus, also in Fig. 2c, the request message $1CD_1$ is "based" on the HTTP request in the message $2CD_1$. Likewise, the return message $1CD_2$ (a simple acknowledgement ACK) is a SIP acknowledgement message and the acknowledgement message $2CD_2$ being a HTTP acknowledgement message, is "based" on the SIP acknowledgement message $1CD_2$. Thus, in this case the mapping device running e.g. the IPTV proxy application AS–A(MPEG2) simply "maps" request and acknowledgement messages between the different control planes of the server IMS-S and the second terminal device T2.

Fig. 2c also shows another example in which the service-specific mapping device runs a proxy application in order to negotiate the request for resources with the server IMS-S if a request for a specific service provision is made by the second type HTTP terminal device T2. The example is for the case, when accessing a VoD (Video on Demand) service and the second terminal T2 is constituted by a set-top-box STB. The set-top-box STB (as indicated with the brackets in Fig. 2c) has initiated a media session with a VoD server using an RTSP protocol. As indicated in Fig. 1c or in Fig. 2a, the actual video streaming may be provided through a direct line DL or through the access network AC. An important aspect is that the access network should have enough resources RES (e.g. bandwidth) to deliver the requested stream to the set-top-box. A general feature of the server IMS-S is that it is able

to negotiate the resources RES required by the end device and the resources RES available in the access network AC. Hence, the IMS-S server generally allows for QoS provisioning (QoS = Quality of Service). However, as explained with reference to the prior art Figs. 1a, 1b, 1c, an off-the-shelf set-top-box STB does not have the capability to negotiate such resources RES with the IMS-S server.

However, as shown in Fig. 2c, if the gateway apparatus HiGA comprises a services specific mapping device running an RTSP proxy application AS-A(RTSP), then off-the-shelf-devices having no knowledge of QoS are enabled to request QoS parameters in a network that has a QoS reservation system. A simply example is that the user would like to watch a high definition movie, i.e. a HDTV movie that requires 5Mbsp bandwidth. If the access network AS only provides 3 Mbps, then there is a problem, because simply the high definition movie is not capable to be provided to the user having the off-the-shelf set-top-box STB.

Whilst the RTSP proxy in the application space of HiGA does no resource reservation/allocation, the reservation is actually done by the resource manager entity in the network on request from the IMS-AS. The IMS-AS is in turn asked by the IMS IPTV client in the HiGA which is triggered by the RTSP proxy. The IMS IPTV client is really the entity in the HiGA which supports SIP and which is "aware" of the IPTV service. It therefore constitutes a true HiGA functionality. Hence, using an RTSP client (in the device) → an RTSP proxy (sitting in the application space of HiGA) → an IMS IPTV application (core HiGA functionality) → an IMS AS → access network resources manager in the mentioned order, it is possible to negotiate in advance the requirements of the user's stream and capabilities of the access network AC and then either allow the stream when there are enough resources RES or to disallow the stream when there are not enough resources RES.

On the other hand, it should be noted that the RTSP proxy itself is really at the end of the above mentioned order and it does not do a resource reservation by itself. The resource reservation is done by the IMS AS (in conjunction with the other mentioned network components) when it gets a request from the IMS IPTV application in the device. The RTSP proxy just passes the RTSP requests from the client to the IMS IPTV application. Further details are explained below with reference to the preferred example "TRIGGERS FOR PERSONALIZED CONTENT".

Summarizing, in Fig. 2c the second type control data $2CD_1$ constitute a simple service request for the video streaming provision and this request $2CD_1$ is provided to the RTSP proxy application AS-A (RTSP). The RTSP proxy application can then initiate an enquiry/request message $1CD_1$ to the server IMS-S to enquiry whether there are sufficient resources in the access network AS to provide the requested service (video stream) to the second type terminal device STB. The server IMS-S-in response to receiving the request/enquiry message $1CD_1$ can then negotiate or check with the access system AC whether there are sufficient resources RES for the service provision. If there are sufficient resources, an acknowledgement message $1CD_2$ = ACK is sent back to the RTSP proxy application in HiGA and if there are no sufficient resources found, then a non-acknowledgement message $1CD_2$ = NACK is provided to the RTSP proxy application. Corresponding acknowledgement/non-acknowledgement (ACK/NACK) messages are then provided from the RTSP proxy application to the set-top-box STP. First the RTSP proxy application can check and reserve the required bandwidth (resources RES) for the service provision although the off-the-shelf-set-top-box STP can only send a general request message for the service provision. Thus, on a user-specific basis (because the RTSP proxy application can personalize the request from the set-top-box (STB) with the user identity known in HiGA), it is

not only possible to simply reject or allow the video streaming provision but it is also possible e.g. to allow the video service provision with a smaller bandwidth, i.e. with a lower QoS. Thus, the gateway apparatus HiGA performs and allows a user-specific negotiation of QoS with the server IMS-S. For example, the user may also only have paid for a certain bandwidth on the access network AC and the gateway apparatus HiGA with its RTSP proxy application can "tailor" the video service provision to a QoS for which the user has paid.

As illustrated with the examples in Fig. 2b and Fig. 2c and with the general block diagram of the communication system SYS in Fig. 2a and the communication method in Fig. 3, it may be understood that due to the invention also conventional second type terminal devices T2 can be provided with first type control information through the intermediary of the HiGA proxy. In this manner, user-specific, i.e. personalized, content data can also be provided to simple standard second terminal devices T2.

Hereinafter, a special embodiment of the invention in connection with the case of IPTV is described with reference to Fig. 2d and also with reference to Figs. 4a, 4b, 4c, 4d and 4e.

Fig. 2d is essentially corresponding to Fig. 2a for the specific case of an IPTV service application. In Fig. 2d is shown an application space and service-specific applications within it, as well as a set of non-IMS devices which can access IMS services via the HiGA. An example of the IMS service is the IPTV service. The interactions between a non-IMS STB (second terminal device), an IPTV service application in the HiGA application space (a mapping device) and the IMS IPTV AS are illustrated in Figs. 4a, 4b, 4c, 4d, 4e. These Figs. illustrate signalling diagrams which are specific to the IPTV service and are illustrated here as an example of a

service implementation. Whilst some of the messages are standard in a HiGA implementation, special messages will be highlighted to illustrate the features of the invention in the HiGA application space with an IPTV application introduced. For other IMS services and non-IMS services the sequence diagrams in Fig. 4a, 4b, 4c, 4d, 4e would be similar, depending on the application (service) to be provided.

As shown in Fig. 2d, the HiGA with an application space assumes support for application-specific logic located in the HiGA. The control plane is once again terminated in HiGA which has the task of mapping this to the native control plane of the STB by means of the mapping devices. Hence, the HiGA, as explained before, acts again as the IPTV server proxy to the STBs. The application space in HiGA thus is a place-holder for modules terminating application-specific data from the IMS IPTV AS. Again, as in Fig. 2a, the media plane from the IMS content server IMS-S is terminated in the STB.

As explained above, the HiGA functionality could be located in a residential gateway or in a master STB (M STB). This allows for the existence of multiple STBs (slave STBs) in the home environment which are connected to one master device handling IMS control plane on their behalf.

It may be noted that all the diagrams in Fig. 4a-4e relate to a preferred mode of the invention but are by no means to be considered as limiting the scope of the invention because the main scope of the invention is shown with the diagrams in Fig. 2a and Fig. 3

The media-session initialisation in the STB is shown in Fig. 4a. It should be noted, that in Fig. 4a there are messages which partially are incorporated already in a conventional gateway apparatus HiGA. The new messages in accordance with

the preferred mode of the invention are respectively encircled in Fig. 4a (and also in the other flowcharts of Figs. 4b-4e, to be explained hereinafter). Fig. 4a is more detailed embodiment of the invention relating to the EPG download in Fig. 2b.

In Fig. 4a, the "media server" on the right hand side corresponds to the IMS-S server shown on the right hand side in Fig. 2a. The set-top-box STB corresponds to the second type terminal device T2. The ":HGA"/:CSCF (call/session control function) are located in the gateway apparatus HiGA. The ":IPTV AS" corresponds to the application space in the IMS server.

The precondition in Fig. 4a is that a trigger in :CSCF is set up on REGISTER for sip:family@op.co and the STB is off; sip:family @op.com is the default IMS identiy on the set-top-box STB. The media session initialization in the set-top-box STB in Fig. 4a starts with message 1:Power on which is sent from the STB to the HiGA. With the message 2:REGISTER, the HiGA registers with the family identity. This step 2: involves the HiGA registering the set-top-box STB to the application space AS. Step 2: is a conventional message as e.g. defined in "Rechon Architecture Report, EAB-05:045608, 2005-12-22.

In step 3: a registration request is relayed to the application space based on prior established triggers. In step 4:, the application space AS responds with a step 4:MESSAGE message containing the user profile. Step 5: sends the MESSAGE to the HiGA. Now, based on the received user profile, the gateway apparatus HiGA performs a subscription in step 6: SUBSCRIBE to the application space AS. In step 7: SUBSCRIBE the subscribe message is relayed to the application space AS. In step 8: the application space :IPTV AS responds with a NOTIFY message containing a URL to the EPG for the corresponding user profile. In step 9: NOTIFY, the NOTIFY

message containing the URL is relayed to the gateway apparatus HiGA. So far, steps 1: to 9: are conventional in as far an off-the-shelf second terminal device T2 can also execute such steps in order to receive a URL to an EPG for a corresponding user profile.

In accordance with the invention, in step 10:, the gateway apparatus :HiGA sends a message 10:Retrieve EGP data message to the :IPTV AS application space. Thus, in step 10:, the IPTV application :IPTV AS in the application space retrieves the EPG from the location specified in the received URL. In step 11:EPG in format X, the EPG data which has been retrieved from the URL is received in a format normally not supported by the set-top-box STB, i.e. essentially the EPG is in a control data format of the first type (see also Fig. 2b). Therefore, in step 10, the gateway apparatus :HiGA converts the EPG to a format of a second type which is supported by the set-top-box STB. This is done, because the EPG is normally not necessarily in the same format as supported by the set-top-box STB. 'That is, the EPG format is converted to a format supported by the STB, e.g. into an HTML format. In step 12: the converted EPG data in the second control data type (e.g. HTML) is relayed to the set-top-box STB. In this manner, the off-the-shelf-set-top-box STB can receive a personalized electronic program guide EPG.

In step 13:INVITE, an INVITE message is sent by the HiGA containing the SDP which would be used to allocate network resources for the media stream in the transport network. After step 12:, i.e. after download of the EPG, :HiGA can perform a resource negotiation, as in principle shown in Fig. 2c. Thus, :HiGA can first reserve in the access network AC a certain maximum bandwidth, e.g. a 5MB line. Then, the user at the STB can select the stream channel as request to the IMS server, e.g. the user can request a HDTV channel. If the access network AC cannot provide the line, HiGA will return the message NACK saying that the access network AC cannot

provide the line (see also Fig. 2c). HiGA can also negotiate in the message to better try another stream or to do the streaming with a channel of lower resolution.

In step 14:, an invite message INVITE is relayed to the CSCF (Call/Session Control Function). In step 15:, an OK message containing a unicast or multicast address is returned by the application space :IPTV AS. In step 16:, the OK Message is relayed from the :CSCF to the :HiGA.

Step 17:Start media session is an important message which is not supported in conventional systems. In step 17:, the :IPTV application space in HiGA invokes a media seesion establishment between the set-top-box STB and the service provision device (the media server). This message is an important message because the :HiGA can actively control and initiate a media session establishment in step 17:. Figs. 4b, 4c show further preferred details of this.

In step 18:media session establishment, a media session is established between the STB and the media server IMS-S in a conventional way, e.g. through a direct line DL or through an access network AC, as shown in Fig. 2a.

Thus, since the :HiGA performs the registration on a user-specific basis (see the first block in Fig. 4a), it is possible to retrieve a user-specific electronic program guide EPG from the :IPTV AS and this specific electronic program guide EPG can be relayed to an off-the-shelf STB after having been converted before step 12:. Thereafter, the media session establishment can be triggered. Thus, control data (electronic program guide EPG) can be provided to the set-top-box in a user-personalized way, something that an off-the-shelf set-top-box STB is normally not capable of doing.

Fig. 4b shows a unicast session establishment using an UPnP protocol as illustration of the step 17:start media session

in Fig. 4a. The precondition in Fig. 4b is that the STB is powered on and registered at the server IMS via HiGA, i.e. that steps 1: to 9: in Fig. 4a have been carried out beforehand. In Fig. 4b the media server on the right hand side corresponds to the service SERV stored in the services memory SERM of the server IMS-S shown in Fig. 2a. The HiGA and the UPnP media server are co-located in the HiGA shown in Fig. 2a. The STB on the left hand side in Fig. 4b corresponds to the second terminal T2 shown in Fig. 2a.

In step 1: in Fig. 4b, the UPnP server is co-located with the IPTV application in the HiGA application space and invokes the set-top-box STB to initiate a media session passing the URL of the video content located in the media server. The UPnP AV architecture could preferably be used here, in particular the asynchronous push model described in section 6.5 of "UPnP AV architecture 0.83".

In step 2:, there is an establishment of a unicast session which means that the STB's UPnP media renderer establishes a unicast stream with the media server on the right hand side. Similarly as in Fig. 2c, this can be done by a RTSP protocol. In step 3: the RTP media stream is sent to the STB from the media server. In this scenario, the native application in the set-top-box STB could preferably be the UPnP media renderer device described in "UPnP AV architecture 0.83".

As mentioned in the important step 1:, the set-top-box STB is invoked to initiate a media session in which the URL of the video content located in the media server is passed. Thus, an active control of the STB from the :HiGA can be performed.

In contrast to Fig. 4b, Fig. 4c shows a multicast session establishment which can be used in step 17: in Fig. 4a. In addition to the units shown in Fig. 4a, Fig. 4c also shows a residential gateway RGW located between the gateway apparatus HiGA and the :CSCF (Call/Session Control Function).

Similarly, as in Fig. 4b, Fig. 4c is based on the pre-condition that the :HiGA is registered and the EPG has been downloaded by the STB.

The important message 1:INVITE in accordance with the invention comprises that the IPTV application in the HiGA sends out an INVITE message to the CSCF requesting to receive a multicasted channel (e.g. a broadcasted TV channel). Thus, in accordance with the invention, the :HiGA can actively send a first type request message to the :CSCF requesting to receive a specific multicasted channel. Essentially, step1:INVITE is to initiate a broadcast session, e.g. INVITE tv_as@op.com.

In step 2:, the INVITE message is relayed to the IPTV application space :IPTV AS by the :CSCF. In step 3:, the application space AS in the server IMS-S replies with an OK message containing a multicast address (e.g. 200) for the multicast group containing the video stream of the TV channel. This multicast address is denoted in step 3: with MC_X. In step 4: the OK message is transmitted to the gateway apparatus HiGA. Steps 2: to 4: are conventional messages in order to relay a request message to the server and to respond to such a message by the server.

In accordance with the invention, in step 5:, the IPTV application space in the HiGA application space invokes the IGMP client in the set-top-box STB to join the multicast group. Further, in accordance with the invention, in step 6: the IGMP client in the set-top-box-STB joins the new multicast group by sending an IGMP JOIN message to the residential gateway RGW which transmits it to the IGMP aware access node of the transport (access) network.

Messages 1:, 5:, 6: in Fig. 4c allow the STB to be controlled with second type control data in such a manner that it can join a specific multicast group on a multicasted channel

(e.g. a broadcasted TV cannel). Hence, the :HiGA performs the "negotiation" with the server :IPTV AS for a multicasted channel and can then, after receiving OK message in step 4:, send corresponding control data of the second type to the set-top-box STB to invoke an IGMP client to joint the multicast group. Such negotiation is not possible with off-the-shelf set-top-boxes STB.

Fig. 4d shows an example of sending control data from the server to the set-top-box STB in order to update an electronic program guide EPG. The precondition in Fig. 4d is that the set-top-box STB is powered on and registered at the INS server via HiGA (essentially that the steps 1: to 6: in Fig. 4a have been carried out). The purpose in Fig. 4d is essentially that the IPTV application in :HiGA gets an EPG update, as one example of having control data in the STB updated. However, it is understood that also other kind of control data could be updated is very much the same manner.

Step 1: is a conventional message in which the server side IPTV AS sends an EPG update message to the :HiGA. The IPTV client (IPTV proxy application) in the HiGA receives the EPG and the EPG is adapted to the format supported by the STB. Already this conversion of the EPG is - as explained with reference to Fig. 4a, step 12: - part of a new message in accordance with the invention.

In step 2:, in Fig. 4d, the IPTV proxy application (client) in the :HiGA sends EPG updates to the set-top-box STB. This step is an implementation specific to the EPG model supported by the set-top-box STB. Alternative and preferred modes include the sending of the entire EPG file or just the changes down to the STB. However, what is important is - similarly to Fig. 2b - that control data in terms of an electronic program guide EPG is exchanged in a first type format between the server :IPTV AS and the :HiGA and the set-top box STB is made to understand this update by having it

converted in the :HiGA to a format which is supported by the STB.

Thus, whilst off-the-shelf STBs can only receive a general user-unspecific EPG and no changes, the communication system SYS of the present invention allows to download a personalized (user) specific) EPG, as well as changes, thereof to the off-the-shelf STB.

As explained in the above numerous examples of Figs. 4a-4e, the IPTV proxy application (client) in the HiGA application space takes over functionalities and conversion functions which are normally not possible by an off-the-shelf STB. One could also say, that the HiGA acts as a kind of front-end for a conventional STB to carry out functions which "modern" STBs can carry out themselves.

Another important scenario is how personalized content can be delivered to the STB with the help of the IPTV proxy application (client) in the :HiGA application space, as is essentially illustrated with Fig. 4e. An example of a personalized content is an advertisement tailored to the user's preference or the user profile. This advertisement would be shown to the user during commercial breaks. Thus, similarly as having downloaded and converted a personalized electronic program guide EPG, the scenario in Fig. 4e relates to the provision of personalized content to the off-the-shelf STB.

In Fig. 4e, the positioning and arrangement of the units :STB, :HiGA, :CSCF, :IPTV AS and :media server correspond to the respective units in Fig. 4a. The precondition in Fig. 4e is that the STB is powered on and registered to the server IMS via :HiGA. The :HiGA is subscribed to the multicast channel event triggers to understand trigger events being sent from the server side.

As shown in Fig. 4e, in step 1:Event trigger, an event trigger is received by the HiGA. This could be a trigger for an event, such as the start of a commercial, an interactivity trigger for routing etc. Of course, eventually the purpose of the event trigger in step 1: is to bring about the invocation of a particular action in the set-top-box STB. This event trigger (of first type control data, see Fig. 2a) is converted by the HiGA into the second type control data to be understood by the off-the-shelf set-top-box STB. Generally, the basic function of an event trigger is to bring about the invocation of a particular action in the STB. In the example of Fig. 4e, of course, the purpose of the event trigger is to inform the STB to start a media-session - which is a commercial. That is, of course, the eventual desire is that the STB starts a media session with the server side in order to be connected with the commercial or advertisement in a personalized way.

Therefore, in step 2:, a media session establishment is initiated in which, based on the URL in the trigger, the IPTV application (proxy application) in the HiGA invokes a media session establishment in the set-top-box STB. This media session establishment is shown with Figures 4b, 4c depending on whether a unicast session or a multicast session is to be established.

It may turn out that establishing unicast sessions (Fig. 4b) for delivering personalized content may be too expensive from the point of view of network resources in the access transport network AC. For this reason, personalized content, such as advertisements, could be pre-cached in the CPN (Customer Premises Network), e.g. in the STB itself or in a NAS (Network Attached Storage) controlled by the operator. In this case, the media server in steps 3:, 4: in Fig. 4e will be the CPN entity with pre-cashed content (e.g. STB or NAS).

Since the :HiGA personalizes the messages due to the registration process (and due to having the user identities stored in it), it can be achieved that user-personalized commercials will be provided to the STB in the actual media session because the HiGA performs a filtering of what kind of event trigger is received in order to check whether the commercial (event trigger initiation) is for a specific user identity or not. Only if it is for a specific pre-registered user identity it will invoke the media session for this commercial in the STB. In this manner, personalized content, e.g. a commercial, can be provided in a user-personalized way to the STB. In contrast to this, using conventional off-the-shelf set-top-boxes, everybody would have to watch the same advert in an advertisement break. That is, in accordance with the invention, HiGA will receive a trigger if a specific previously agreed URL is about to transmit a specific commercial stream. In the HiGA, the URL is associated with the user-ID and therefore, HiGA only provides control data of first type, indicating the provision of a specific commercial on the server side, to the STB if the commercial is about to be sent and a user-ID has indicated interest in it beforehand. If so, then a media session setup is performed for this video asset.

For the invocation of VoD streams, a SIP INVITE message could be sent to the IPTV AS. To achieve this, the IPTV application in the STB could send a message over one of the alternative protocols (z. B. UPnP, HTTP, SIP etc.) to the HiGA and HiGA would in turn initiate the relevant SIP dialogue with the IPTV AS in the server. The final message in the dialogue carrying the SDP could trigger the resource management system to reserve resources RES in the access transport network AC in accordance with the bandwidth requirements of the negotiated media session. Essentially, the resource negotiation would take place as outlined with the example in Fig. 2c.

Having configured the communication system SYS, in particular the gateway apparatus HiGA, as shown in the block diagram in Fig. 2a and in the flow chart in Fig. 3, in particular having configured the gateway apparatus HiGA as shown in Fig. 2a to include service-specific mapping devices as a kind of proxy application for the off-the-self set-top-box STB, the gateway apparatus HiGA can provide access to e.g. IMS based services for different types of non-IMS aware home devices, such as the STB, by the introduction of the relevant applications in the application space AS of the HiGA which adapt, convert and interpret the service control plane of the service providing device IMS-S to the control protocols of the second terminal device T2. This invention, therefore, resolves the issue of incompatibility between non-IMS devices and IMS-based services and hence opens the way for operators to provide their multimedia services over IMS to a variety of standard, off-the-shelf home devices.

One aspect, as shown in Fig. 2b and in Figs. 4a-4e, is relating to the IPTV support in the HiGA application space to allow the standard STB to maintain its original functionality without having to be aware of the IMS IPTV AS in the server. Hence, the standard STB can be a generic media terminating device, i.e. general second type terminal device, which can be purchased off-the-shelf.

Furthermore, the application space proxy in the HiGA allows the HiGA to be easily upgraded. New versions of service applications or updates to existing ones can be downloaded to the application space AS in the HiGA. This adds flexibility to the HiGA in terms of functionality and enables the service providers to remotely manage the HiGA.

The above general embodiments of the invention in Figs. 2a, 3 (principle), Fig. 2b (EPG request) and Fig. 2c (request mapping/resource allocation), as well as the more specific examples of Fig. 2d (IMS server system) and Fig.4a (media

session initialisation and EPG download), Fig. 4b (unicast session establishment), Fig. 4c (multicast session establishment), Fig. 4d (update of EPG), and Fig. 4e (media session initiation based on triggers) may not only be useful in the above mentioned scenarios. For example, it is also envisaged that the terminal device T2 may be constituted e.g. by a controller of a heating system in the home, by a surveillance camera, a home control device performing a control of home appliances (as in a so called "intelligent home"), a DVD or MP3 collection memory, or in fact any other physical unit in the house. The server IMS-S may be connected e.g. with a remote access device such as a mobile telephone. For example, in this case, the mobile phone may be used to remote access an off-the-shelf heating controller of the heating system in the home in a user-specific manner. The mobile phone may also send a trigger to a DVD or MP3 collection memory in the home to download to the mobile phone MP3 files or to establish video streaming of personal DVDs from the home memory to the mobile telephone by establishing a user-specific media session between the home memory and the mobile phone. The mobile phone may also be used to on/off, up/down, or zoom-in/zoom-out control an off-the-shelf camera of a surveillance system located in the home, e.g. by using the trigger messages, as in particular explained with respect to Fig. 4e. This may preferably be done by using the UPnP protocol. Thus the adaptation (mapping) of service attributes may also be used in many other working examples in the home using off-the-shelf home appliances, e.g. situations in which end terminals are used which do not have own IP addresses and which do not run a SIP protocol (first type protocol).

The present invention finds its applicability in a general communication system in which the service provision side operates on the basis of control data of a first type while the terminal devices operate on the basis of control data being of a second type. The gateway apparatus HiGA according to the present invention provides the necessary

interoperability, i.e. the adaptation functions of the control plane of the first and second type. While special examples have been described with the first type being related to a SIP and the second type being related to HTTP, the invention may be used in any other communication system SYS comprising two different control protocols of a first and second type.

Furthermore, it should be noted that modifications and variations of the invention may be carried out within the scope of the attached claims.

Reference numerals in the claims only serve illustration purposes and do not limit the scope of these claims.

CLAIMS

1. A communication system (SYS), comprising a gateway apparatus (HiGA), a plurality of terminal devices (T2 … Tn … TN) and a service providing server (IMS-S) for providing services (SERV) to said terminal devices (T2 … Tn … TN) through an access network (AC), wherein

a) said service providing server (IMS-S) comprises a service memory (SERM) for storing one or more services (SER1, SERV2, SERV3) to be provided to said terminal devices (T2 … Tn … TN), and at least one control protocol (IMS-CTRLP) device of a first type (SIP) providing first type (SIP) control data (1CD) in association with said one or more services (SERV) to said gateway device (HiGA);

b) wherein said terminal devices (T2 … Tn … TN) each comprise a service processor (SP) for processing the service (SERV) provided by said service providing server (IMS-S) through said access network (AC) and a control protocol (TD-CP) device of a second type (non-SIP), different to said first type (SIP) and providing second type (non-SIP) control data (2CD) in association with the execution of the service by said service processor (SP) to said gateway device (HiGA); and wherein

c) said gateway apparatus (HiGA) comprises one or more service-specific mapping devices (AS-A) for exchanging first type (SIP) control data (1CD) with said service providing server (IMS-S) and second type (non-SIP) control data (2CD) with said terminal devices (T2), wherein

- said service-specific mapping devices (AS-A) provide to said service providing server (IMS-S) first type (SIP) control data (1CD1) on the basis of second type (non-SIP) control data (2CD1) received from said terminal devices (T2) and receive first type control data (1CD2) from said first type (SIP) control protocol device (IMS-CTRLP) of the service providing server (IMS-S); and

- said service-specific mapping devices (AS-A) provide to said terminal devices (T2) second type (non-SIP) control data (2CD2) on the basis of said first type (SIP) control data (1CD2) received from said service providing server (IMS-S) and receive said second type control data (2CD1) from said second type (non-SIP) control protocol device (TD-CP) of said terminal devices (T2).

2. Communication system (SYS) in accordance with claim 1, *characterized in that*
said service-specific mapping devices (AS-A) comprise at least one service-specific mapping device (AS-A(IPTV); Fig. 2b) running an IPTV proxy application.

3. Communication system (SYS; Fig. 2c) in accordance with claim 1, *characterized in that*

said second type (HTTP) control data (2CD1) constitute a second type service request and said service specific mapping device (AS-A(RTSP)) sends as first type control data (1CD1) a first type (SIP) enquiry request enquiring the service providing server (IMS-S) whether said access network (AC) has enough resources (RES) to provide said service to the terminal device; wherein

said service providing server (IMS-S) sends as first type control data (1CD2) an acknowledgement message (ACK) indicating that there are enough resources (RES) for the service provision if the service providing service (IMS-S) establishes that there enough resources (RES), and sends as first type control data (1CD2) a negative acknowledgement message (NACK) indicating that there are not enough resources (RES) for the service provision if the service providing server (IMS-S) establishes that there not enough resources (RES).

4. Communication system (SYS; Fig. 2c) in accordance with claim 3, *characterized in that*
said terminal device (T2) comprises a Set-Top-Box (STB) including as service processor (SP) an MPEG2 decoder, said service providing server (IMS-S) comprises in said service memory (SERM) as service (SERV1, SERV2, SERV3) a VoD (Video on Demand) service, said service-specific mapping devices (AS-A) comprise at least one service-specific mapping device (AS-A(VoD)) running a RTSP proxy application and said control protocol (RTSP) is RTSP, and said resources (RES) are the bandwidth of lines (e.g. 5MB) in said access network (AC).

5. Communication system (SYS; Fig. 2a) in accordance with claim 1, *characterized in that*
said gateway apparatus (HiGA) and said terminal devices (T2) are part of a customer premises network (CPN).

6. Communication system (SYS; Fig. 2a) in accordance with claim 5, *characterized in that*
said gateway apparatus (HiGA) is located in a residential gateway (RGW) of said customer premises network (CPN).

7. Communication system (SYS; Fig. 2b) in accordance with claim 1, *characterized in that*
said gateway apparatus (HiGA) receives as said second type first control data (2CD1) from said terminal device (T2) an EPG download request and said second type control data (2CD2) provided by said gateway apparatus (HiGA) comprises a personalized EPG (Electronic Program Guide).

8. Communication system (SYS; Fig. 2a) in accordance with claim 1, *characterized in that*
said gateway apparatus (HiGA) comprises in a memory said user identity (ID1).

9. Communication system (SYS; Fig. 2a) in accordance with claim 8, *characterized in that*
said user identity (ID1) is stored on a plug-in inserted into said gateway apparatus (HiGA) or on an UICC card inserted into a memory of said gateway apparatus (HiGA).

10. Communication system (SYS; Fig. 2a) in accordance with claim 1, *characterized in that*
said terminal device (T2) is one or more selected from the group comprising a set-top-box (STB), a controller of a heating system, a surveillance system in the home, a camera or a central home controller of an intelligent house.

11. Communication system (SYS; Fig. 2d) in accordance with claim 1, *characterized in that*
said first type of said control data (1CD1, 1CD2) is SIP (Session Initiation Protocol) and said second type of said control data (2CD1, 2CD2) is one of HTTP and UPnP.

12. Communication system (SYS; Fig. 4a) in accordance with claim 7, *characterized in that*

said gateway apparatus (HiGA) receives (step 10: in Fig. 4a) from said service providing device (IMS-S) as first type control data (1CD) said downloaded EPG of first type and converts (step 12: in Fig. 4a) a format (X) of said received EPG into a format supported by said terminal device (T2).

13. Communication system (SYS; Fig. 4a) in accordance with claim 7, *characterized in that*
said gateway apparatus (HiGA) invokes (step 17:in Fig. 4a) a media session establishment between the terminal device (T2) and said service providing device (IMS-S).

14. Communication system (SYS; Fig. 4b) in accordance with claim 13, *characterized in that*
said media session establishment is a unicast media session establishment (step 1: in Fig. 4b).

15. Communication system (SYS; Fig. 4c) in accordance with claim 13, *characterized in that*
said media session establishment is a multicast media session establishment (steps 1:, 5:, 6: in Fig. 4c).

16. Communication system (SYS; Fig. 4d) in accordance with claim 1, *characterized in that*
said gateway apparatus (HiGA) receives as first type control data (1CD) an EPG update message (step 2: in Fig. 4d).

17. Communication system (SYS; Fig. 4e) in accordance with claim 1, *characterized in that*
said gateway apparatus (HiGA) receives as first type control data (1CD2) an event trigger message (step 1: in Fig. 4e) and sends as second type control data (2CD2) a media session establishment message (step 2: in Fig. 4e) to said terminal device (T2) on the basis of said event trigger message (1CD2).

18. A gateway apparatus (HiGA) of a communication system (SYS) including a plurality of terminal devices (T2 … Tn … TN) and a service providing server (IMS-S) for providing services (SERV) to said terminal devices (T2 … Tn … TN) through an access network (AC),

wherein said service providing server (IMS-S) comprises a service memory (SERM) for storing one or more services (SER1, SERV2, SERV3) to be provided to said terminal devices (T2 … Tn … TN), and at least one control protocol (IMS-CTRLP) device of a first type (SIP) providing first type (SIP) control data (1CD) in association with said one or more services (SERV) to said gateway device (HiGA),

wherein said terminal devices (T2 … Tn … TN) each comprise a service processor (SP) for processing the service (SERV) provided by said service providing server (IMS-S) through said access network (AC) and a control protocol (TD-CP) device of a second type (non-SIP), different to said first type and providing second type (non-SIP) control data (2CD) in association with the execution of the service by said service processor (SP) to said gateway device (HiGA), comprising:

a) one or more service-specific mapping devices (AS-A) for exchanging first type (SIP) control data (1CD) with said service providing server (IMS-S) and second type (non-SIP) control data (2CD) with said second type (non-SIP) terminal devices (T2), wherein

- said service-specific mapping devices (AS-A) provide to said service providing server (IMS-S) first type (SIP) control data (1CD1) on the

basis of second type (non-SIP) control data (2CD1) received from said terminal devices (T2) and receive first type control data (1CD2) from said first type (SIP) control protocol device (IMS-CTRLP) of the service providing server (IMS-S); and

- said service-specific mapping devices (AS-A) provide to said terminal devices (T2) second type (non-SIP) control data (2CD2) on the basis of said first type (SIP) control data (1CD2) received from said service providing server (IMS-S) and receive said second type control data (2CD1) from said second type (non-SIP) control protocol device (TD-CP) of said terminal devices (T2).

19. A gateway apparatus (HiGA; Fig. 2a) in accordance with claim 18, *characterized in that*
said service-specific mapping devices (AS-A) comprise at least one service-specific mapping device (AS-A(IPTV); Fig. 2b) running an IPTV proxy application.

20. A gateway apparatus (HiGA; Fig. 2c) in accordance with claim 18, *characterized in that*

said second type (HTTP) control data (2CD1) constitute a second type service request and said service specific mapping device (AS-A(RTSP)) sends as first type control data (1CD1) a first type (SIP) enquiry request enquiring the service providing server (IMS-S) whether said access network (AC) has enough resources (RES) to provide said service to the terminal device; wherein

said service providing server (IMS-S) sends as first type control data (1CD2) an acknowledgement message (ACK) indicating that there are enough resources (RES)

for the service provision if the service providing service (IMS-S) establishes that there enough resources (RES), and sends as first type control data (1CD2) a negative acknowledgement message (NACK) indicating that there are not enough resources (RES) for the service provision if the service providing server (IMS-S) establishes that there not enough resources (RES).

21. A gateway apparatus (HiGA; Fig. 2c) in accordance with claim 20, *characterized in that*
said terminal device (T2) comprises a Set-Top-Box (STB) including as service processor (SP) a MPEG2 decoder, said service providing server (IMS-S) comprises in said service memory (SERM) as service (SERV1, SERV2, SERV3) a VoD (Video on Demand) service, said service-specific mapping devices (AS-A) comprise at least one service-specific mapping device (AS-A(VoD)) running a RTSP proxy application and said control protocol (RTSP) is RTSP, and said resources (RES) are the bandwidth of lines (e.g. 5MB) in said access network (AC).

22. A gateway apparatus (HiGA; Fig. 2a) in accordance with claim 18, *characterized in that*
said gateway apparatus (HiGA) and said terminal devices (T2) are part of a customer premises network (CPN).

23. A gateway apparatus (HiGA); Fig. 2a) in accordance with claim 22, *characterized in that*
said gateway apparatus (HiGA) is located in a residential gateway (RGW) of said customer premises network (CPN).

24. A gateway apparatus (HiGA; Fig. 2b) in accordance with claim 18, *characterized in that*
said gateway apparatus (HiGA) receives as said second type first control data (2CD1) from said terminal device (T2) an EPG download request and said second type

control data (2CD2) provided by said gateway apparatus (HiGA) comprises a personalized EPG (Electronic Program Guide).

25. A gateway apparatus (HiGA; Fig. 2a) in accordance with claim 18, *characterized in that*
said gateway apparatus (HiGA) comprises in a memory said user identity (ID1).

26. A gateway apparatus (HiGA; Fig. 2a) in accordance with claim 25, *characterized in that*
said user identity (ID1) is stored on a plug-in inserted into said gateway apparatus (HiGA) or on an UICC card inserted into a memory of said gateway apparatus (HiGA).

27. A gateway apparatus (HiGA; Fig. 2a) in accordance with claim 18, *characterized in that*
said terminal device (T2) is one or more selected from the group comprising a set-top-box (STB), a controller of a heating system, a surveillance system in the home, a camera or a central home controller of an intelligent house.

28. A gateway apparatus (HiGA (SYS; Fig. 2d) in accordance with claim 18, *characterized in that*
said first type of said control data (1CD1, 1CD2) is SIP (Session Initiation Protocol) and said second type of said control data (2CD1, 2CD2) is one of HTTP and UPnP.

29. A gateway apparatus (HiGA; Fig. 4a) in accordance with claim 18, *characterized in that*
said gateway apparatus (HiGA) receives (step 10: in Fig. 4a) from said service providing device (IMS-S) as first type control data (1CD) said downloaded EPG of first type and converts (step 12: in Fig. 4a) a format (X) of said received EPG into a format supported by said terminal device (T2).

30. A gateway apparatus (HiGA; Fig. 4a) in accordance with claim 29, *characterized in that*
said gateway apparatus (HiGA) invokes (step 17:in Fig. 4a) a media session establishment between the terminal device (T2) and said service providing device (IMS-S).

31. A gateway apparatus (HiGA; Fig. 4b) in accordance with claim 30, *characterized in that*
said media session establishment is a unicast media session establishment (step 1: in Fig. 4b).

32. A gateway apparatus (HiGA; Fig. 4c) in accordance with claim 30, *characterized in that*
said media session establishment is a multicast media session establishment (steps 1:, 5:, 6: in Fig. 4c).

33. A gateway apparatus (HiGA; Fig. 4d) in accordance with claim 18, *characterized in that*
said gateway apparatus (HiGA) receives as first type control data (1CD) an EPG update message (step 2: in Fig. 4d).

34. A gateway apparatus (HiGA; Fig. 4e) in accordance with claim 1, *characterized in that*
said gateway apparatus (HiGA) receives as first type control data (1CD2) an event trigger message (step 1: in Fig. 4e) and sends as second type control data (2CD2) a media session establishment message (step 2: in Fig. 4e) to said terminal device (T2) on the basis of said event trigger message (1CD2).

35. A communication method (SYS) between a gateway apparatus (HiGA), a plurality of terminal devices (T2 … Tn … TN) and a service providing server (IMS-S) of a communication system (SYS) for providing services (SERV) to said terminal devices (T2 … Tn … TN) through an access network (AC),

- wherein said service providing server (IMS-S) comprises a service memory (SERM) for storing one or more services (SER1, SERV2, SERV3) to be provided to said terminal devices (T2 … Tn … TN), and at least one control protocol (IMS-CTRLP) device of a first type (SIP) providing first type (SIP) control data (1CD) in association with said one or more services (SERV) to said gateway device (HiGA),

- wherein said terminal devices (T2 … Tn … TN) each comprise a service processor (SP) for processing the service (SERV) provided by said service providing server (IMS-S) through said access network (AC) and a control protocol (TD-CP) device of a second type (SIP), different to said first type, and including second type (non-SIP) control data (2CD) in association with the execution of the service by said service processor (SP), and wherein

- said gateway apparatus (HiGA) comprises one or more service-specific mapping devices (AS-A) for exchanging first type (SIP) control data (1CD) with said service providing server (IMS-S) and second type (non-SIP) control data (2CD) with said terminal devices (T2), comprising the following steps:

providing from at least one of said terminal devices (T2) to said gateway apparatus (HiGA) second type (non-SIP) control data (2CD1);

providing from said service-specific mapping devices (AS-A) of said gateway apparatus (HiGA) to said service providing server (IMS-S) first type (SIP) control data (1CD1) on the basis of said second type (non-SIP) control data (2CD1) provided from said terminal device (T2);

providing first type control data (1CD2) from said first type (SIP) control protocol device (IMS-CTRLP) of said service providing server (IMS-S) to said gateway apparatus (HiGA); and

providing from said service-specific mapping devices (AS-A) to said terminal device (T2) second type (non-SIP) control data (2CD2) on the basis of said first type (SIP) control data (1CD2) provided from said service providing server (IMS-S).

Prior Art

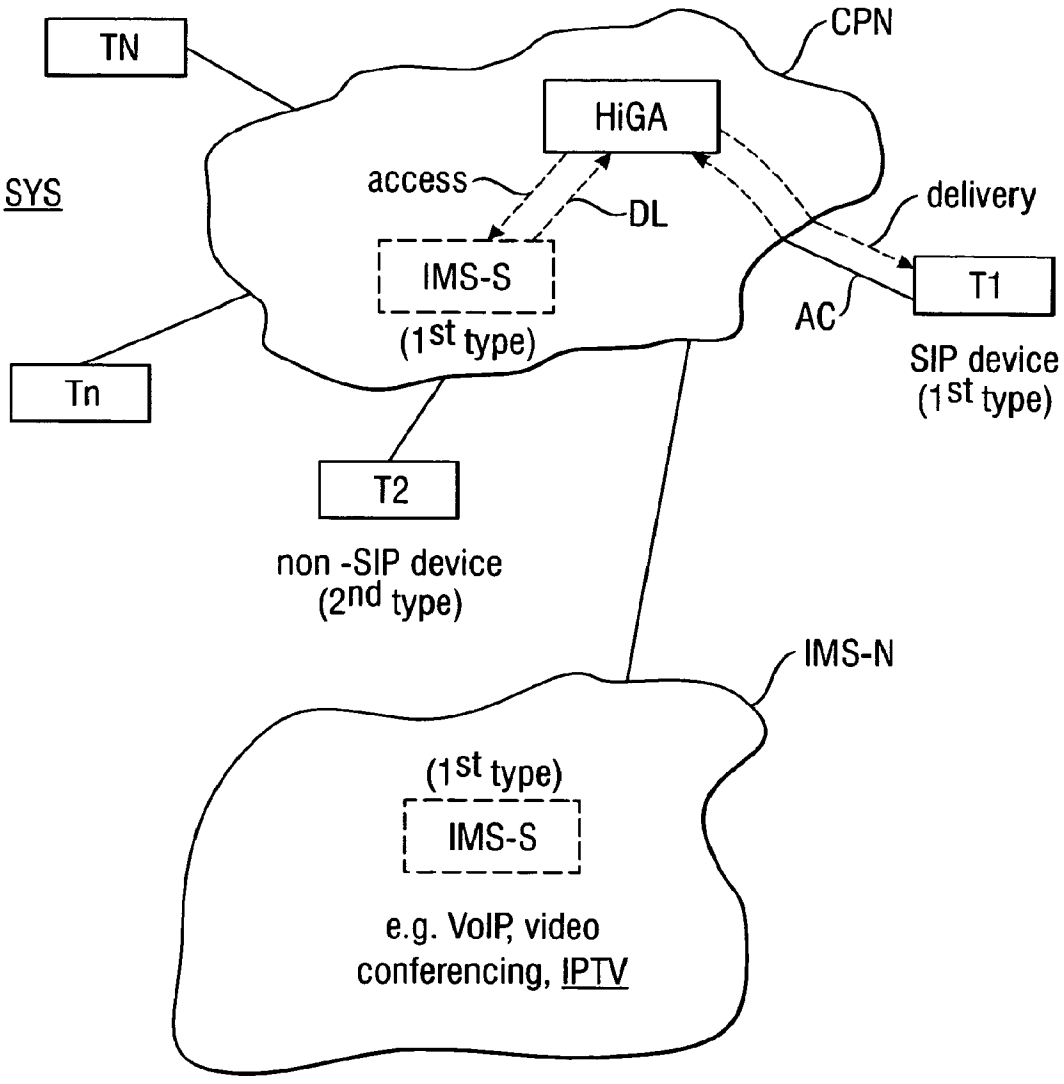


Fig. 1a

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Prior Art

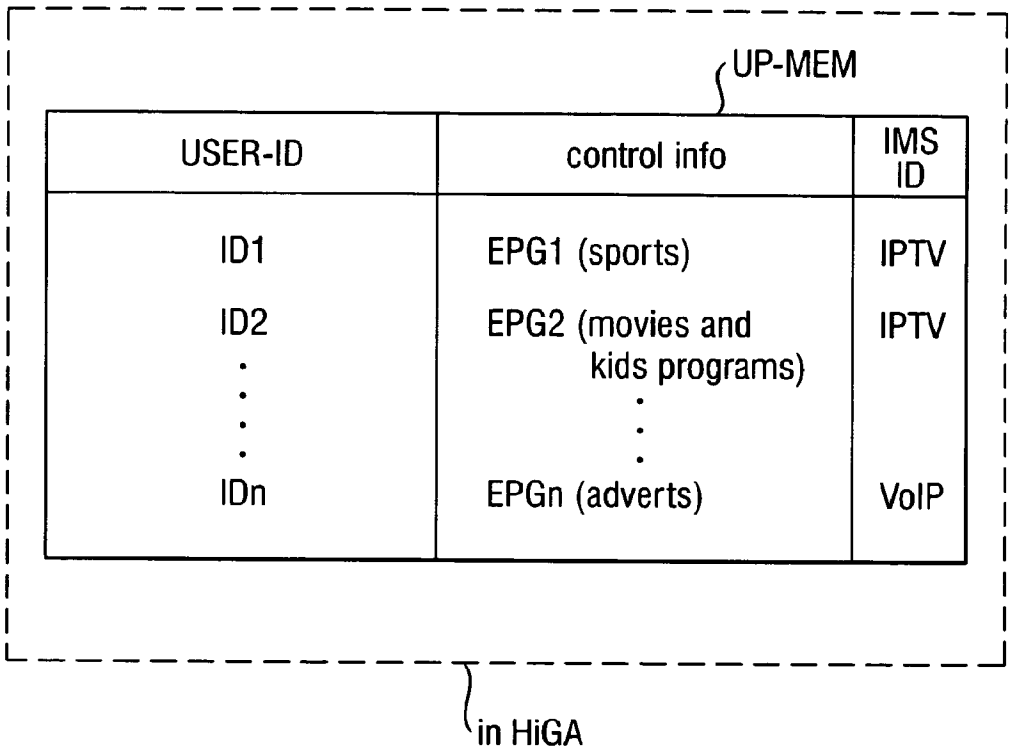


Fig. 1b

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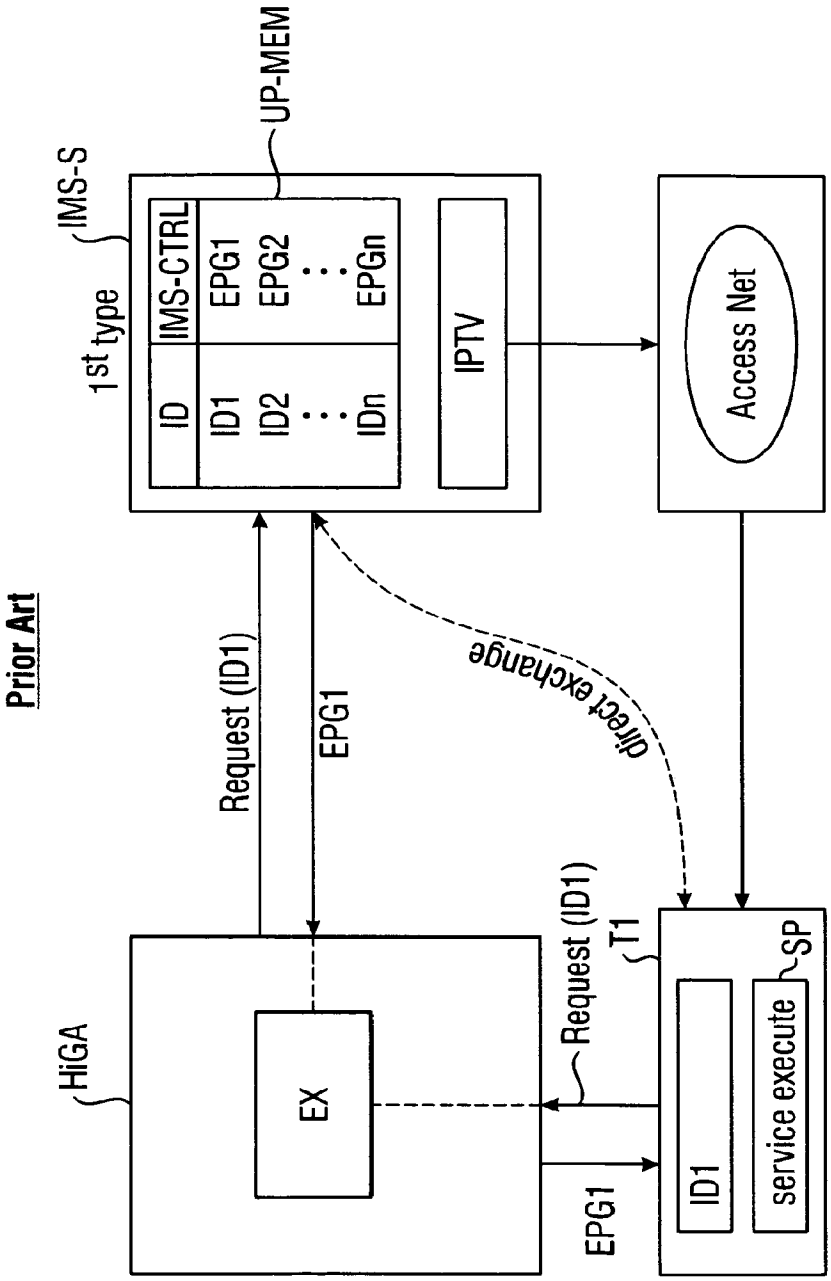


Fig. 1c

Samsung Ex. 1013, Page 648 of 788

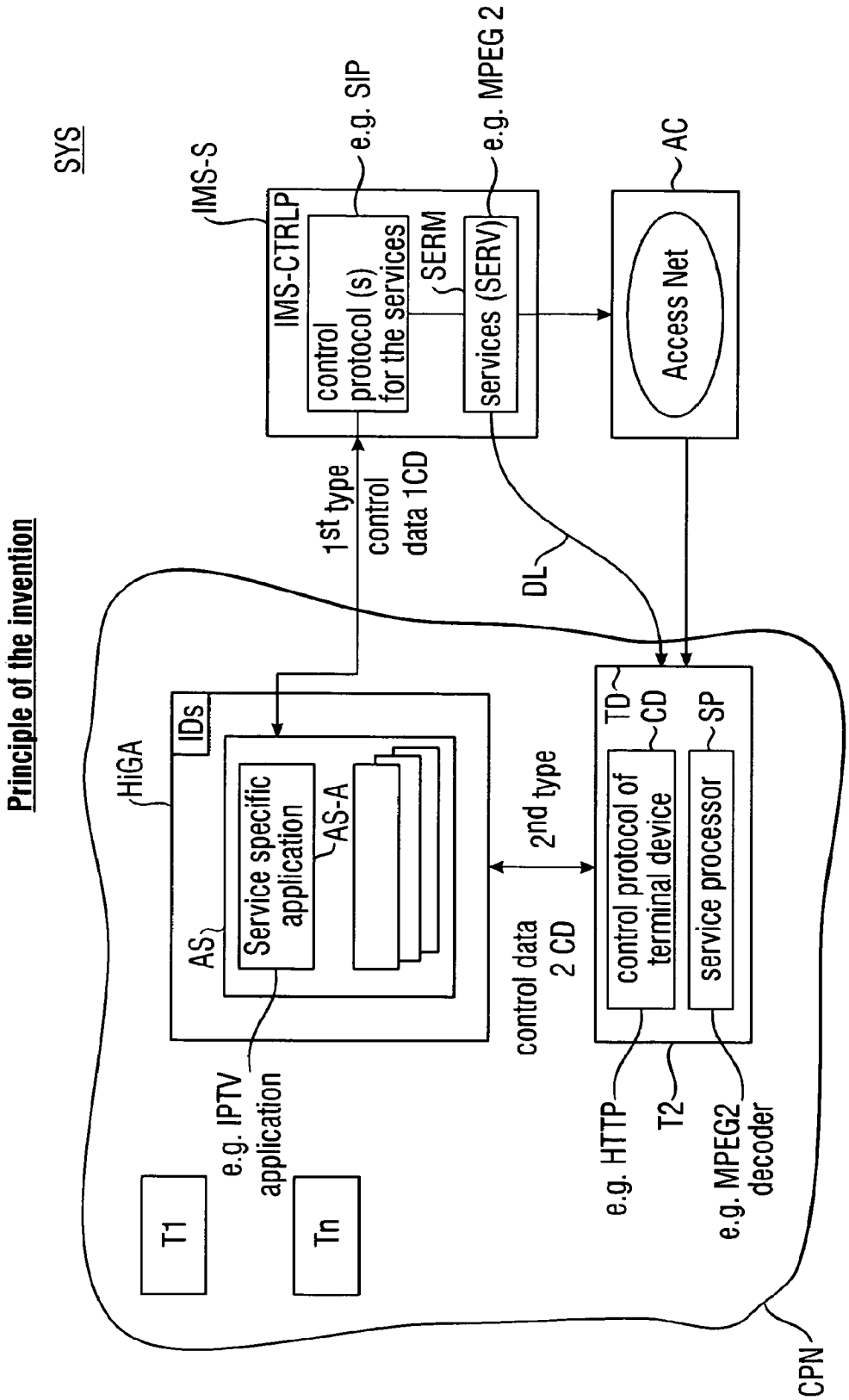


Fig. 2a

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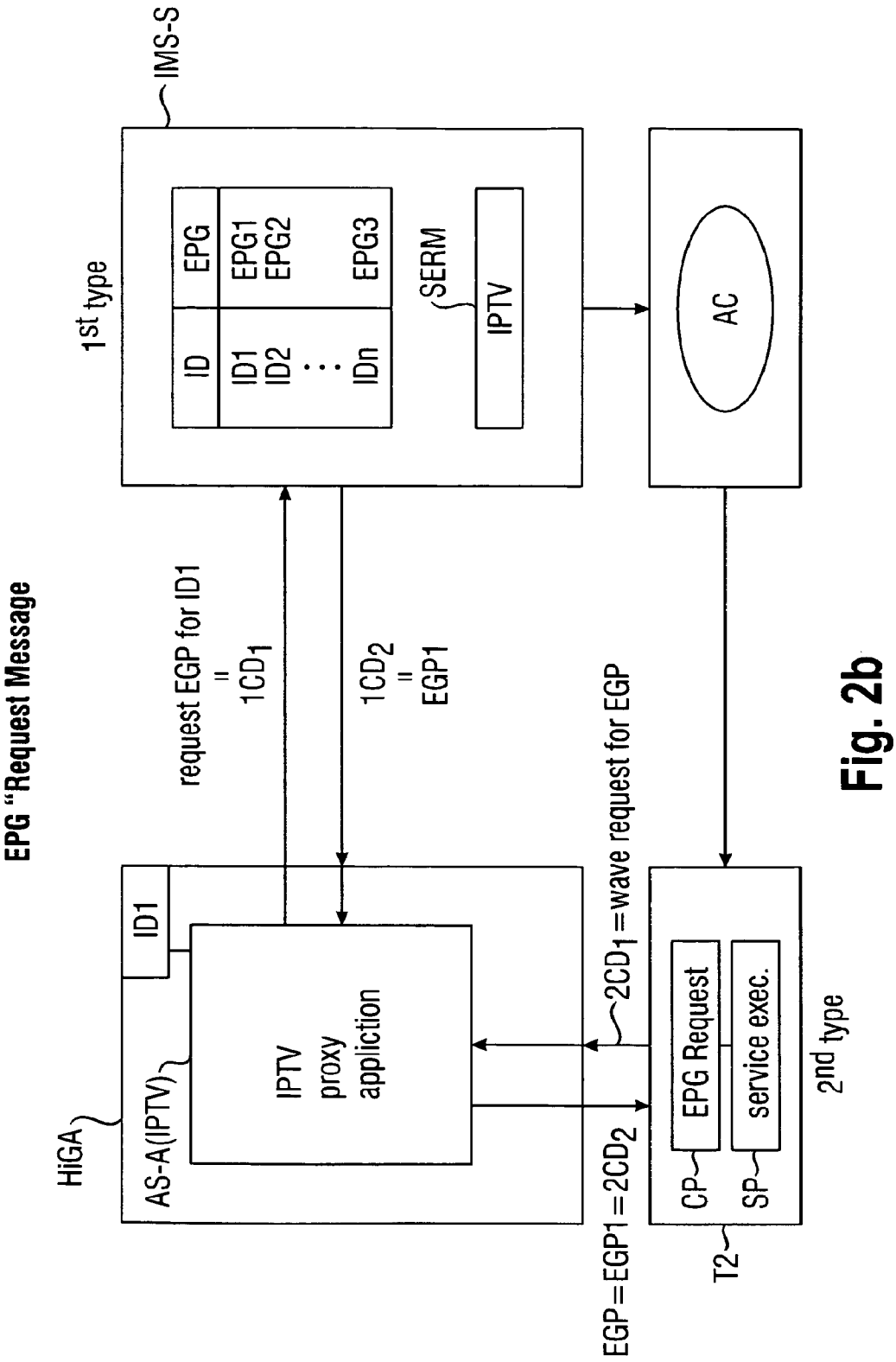


Fig. 2b

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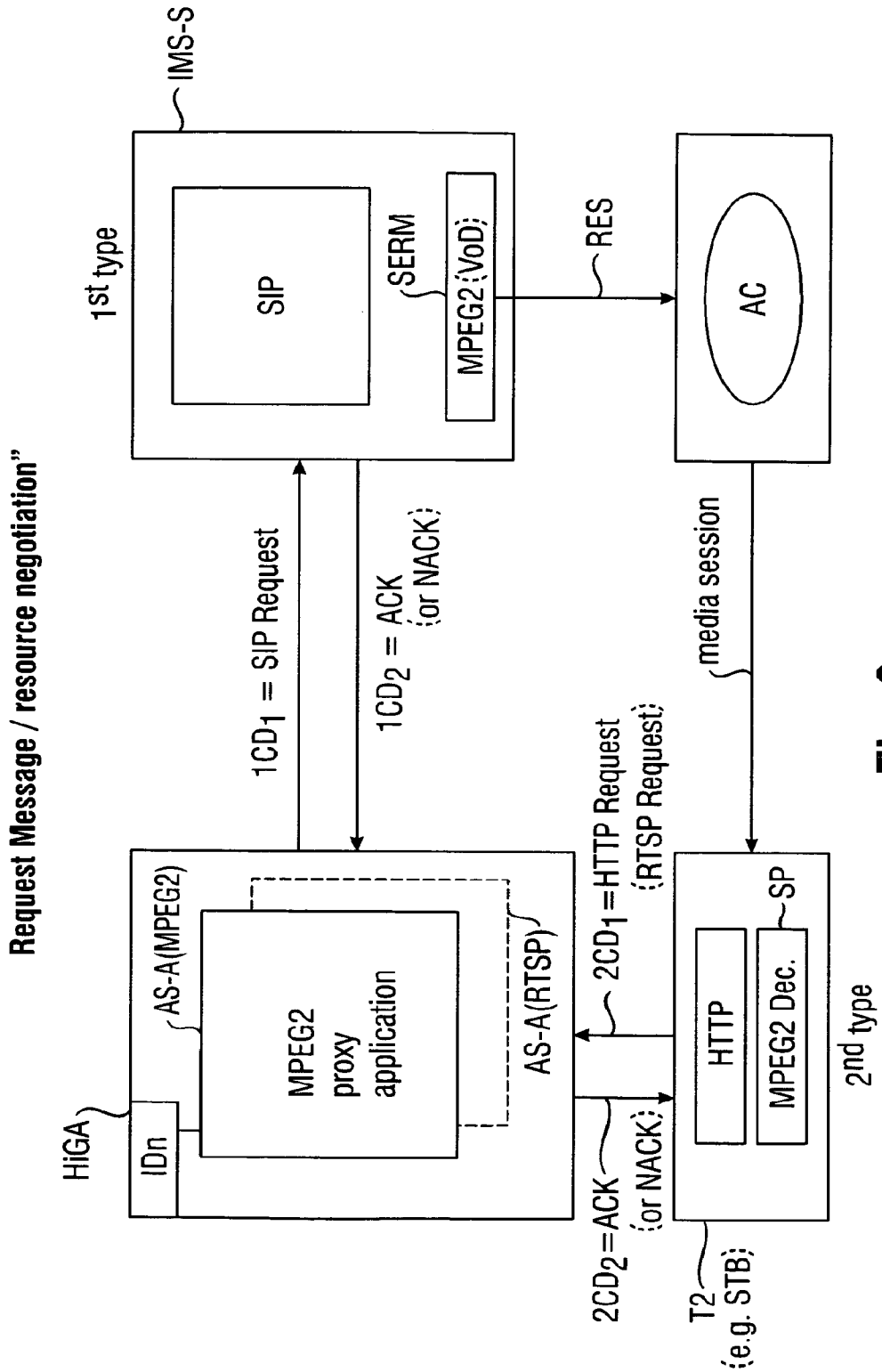


Fig. 2c

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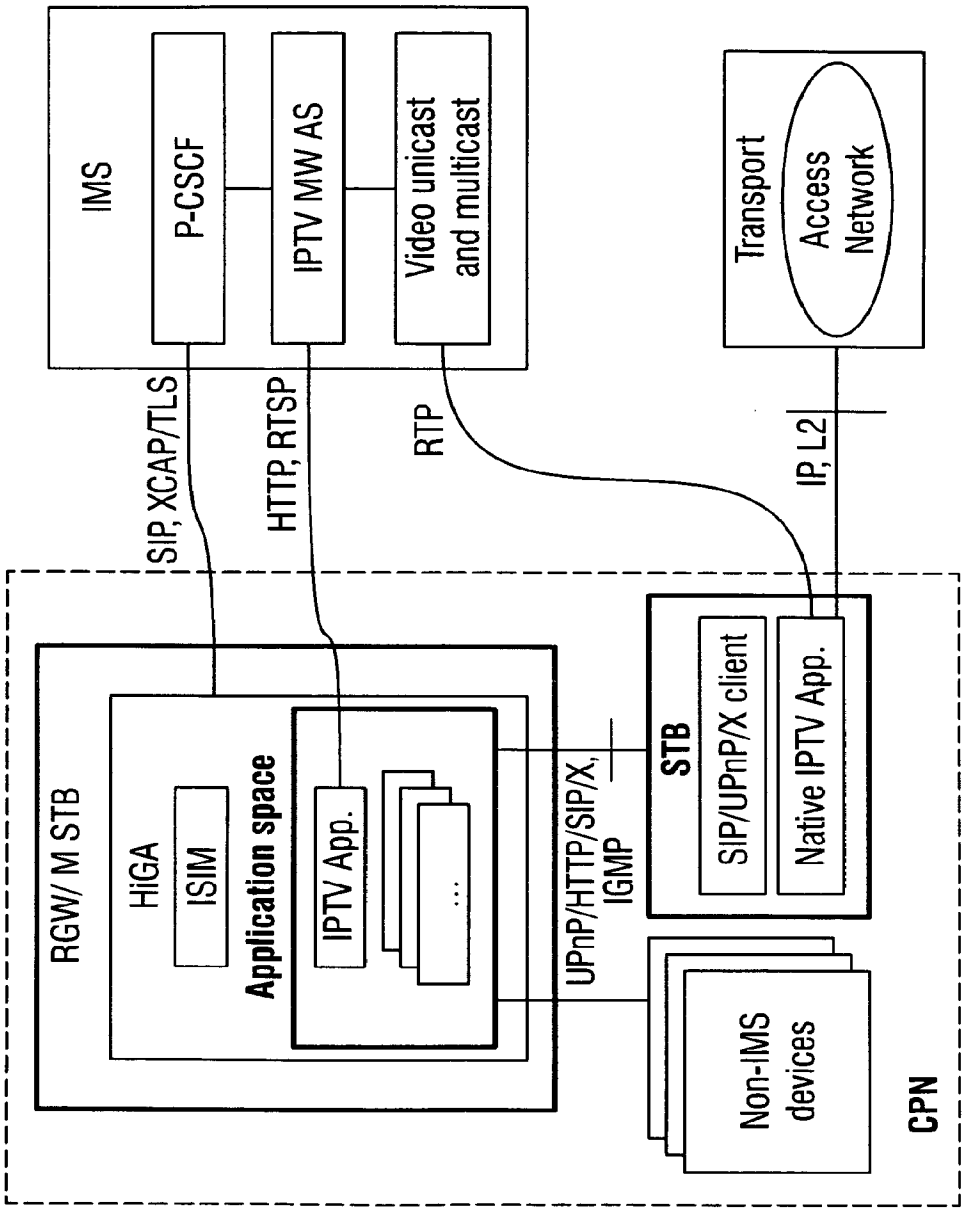


Fig. 2d

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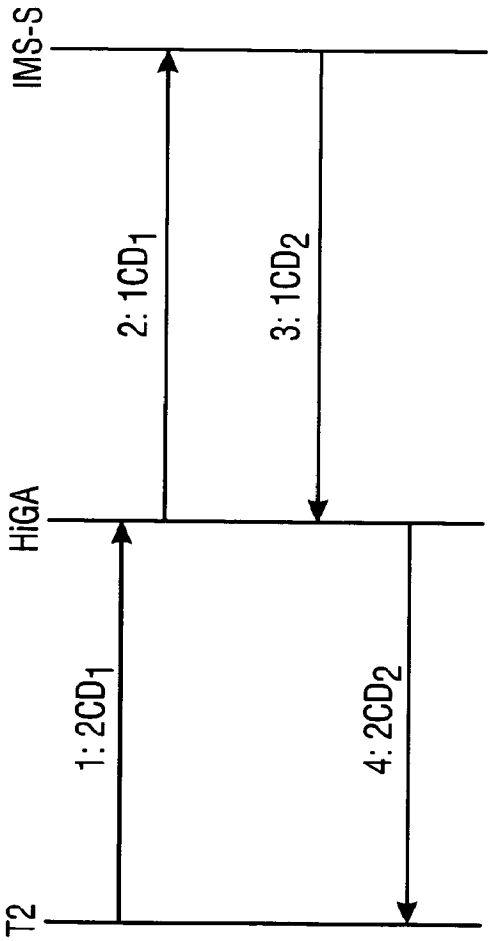


Fig. 3

Principle Method of the invention

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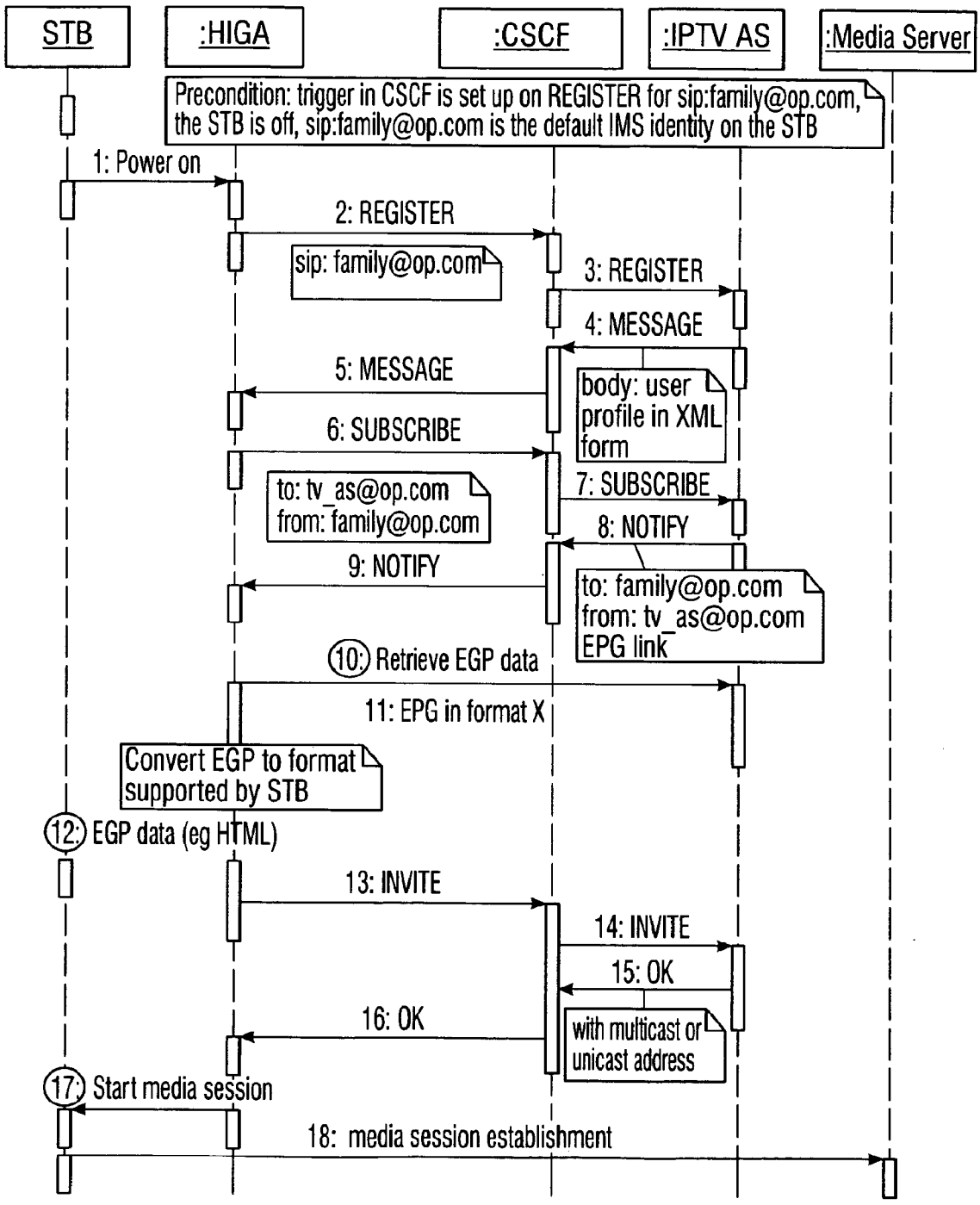


Fig. 4a

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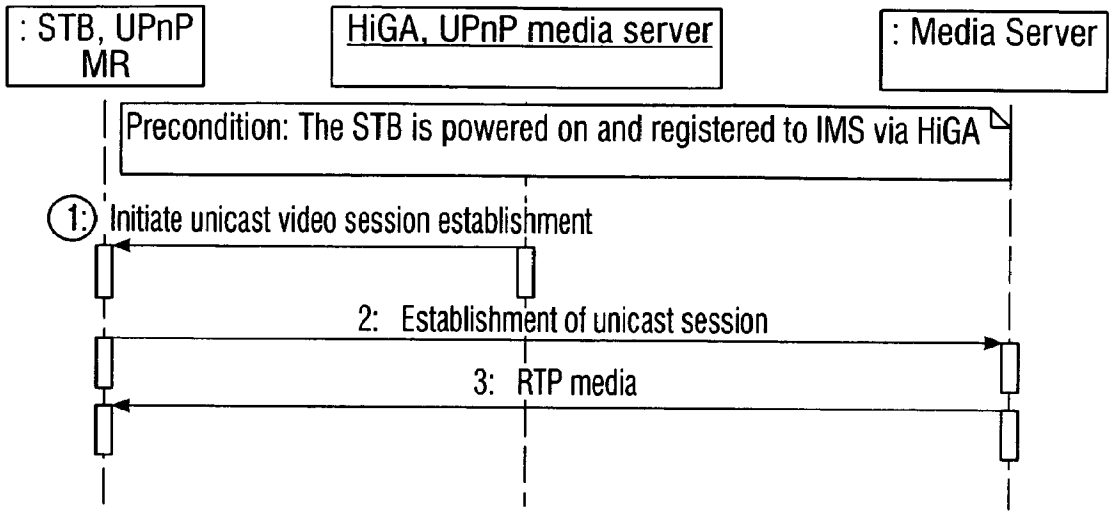


Fig. 4b

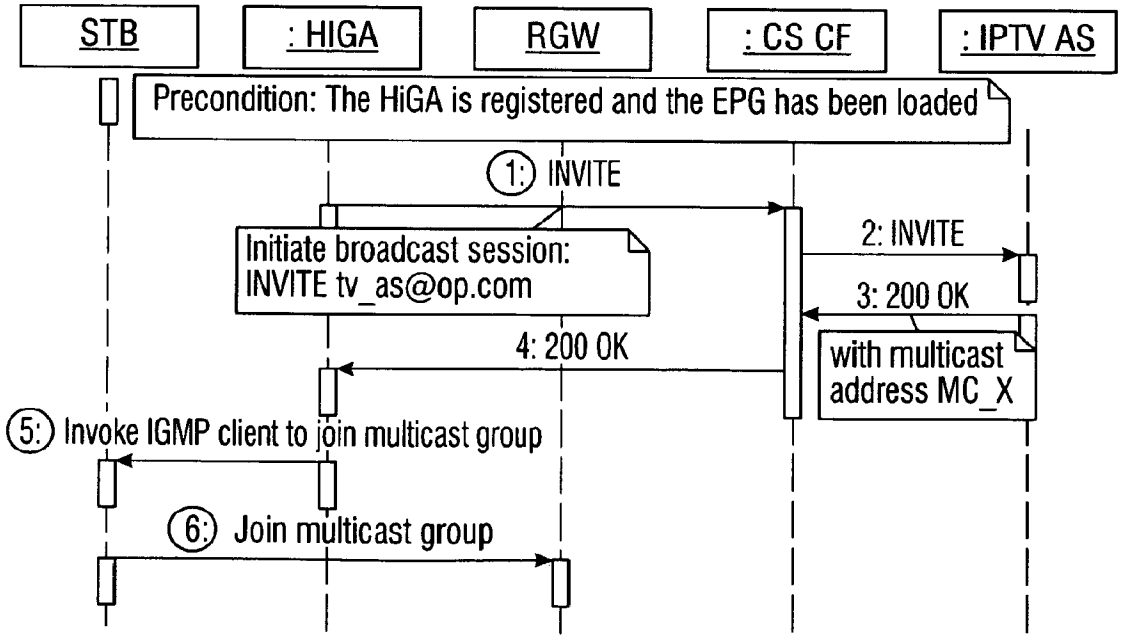


Fig. 4c

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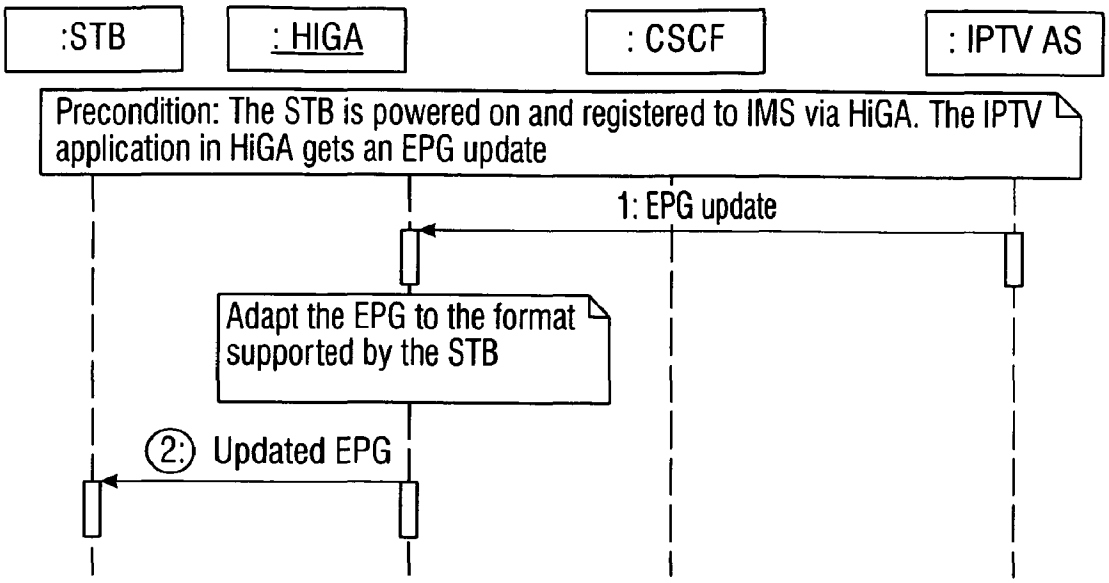


Fig. 4d

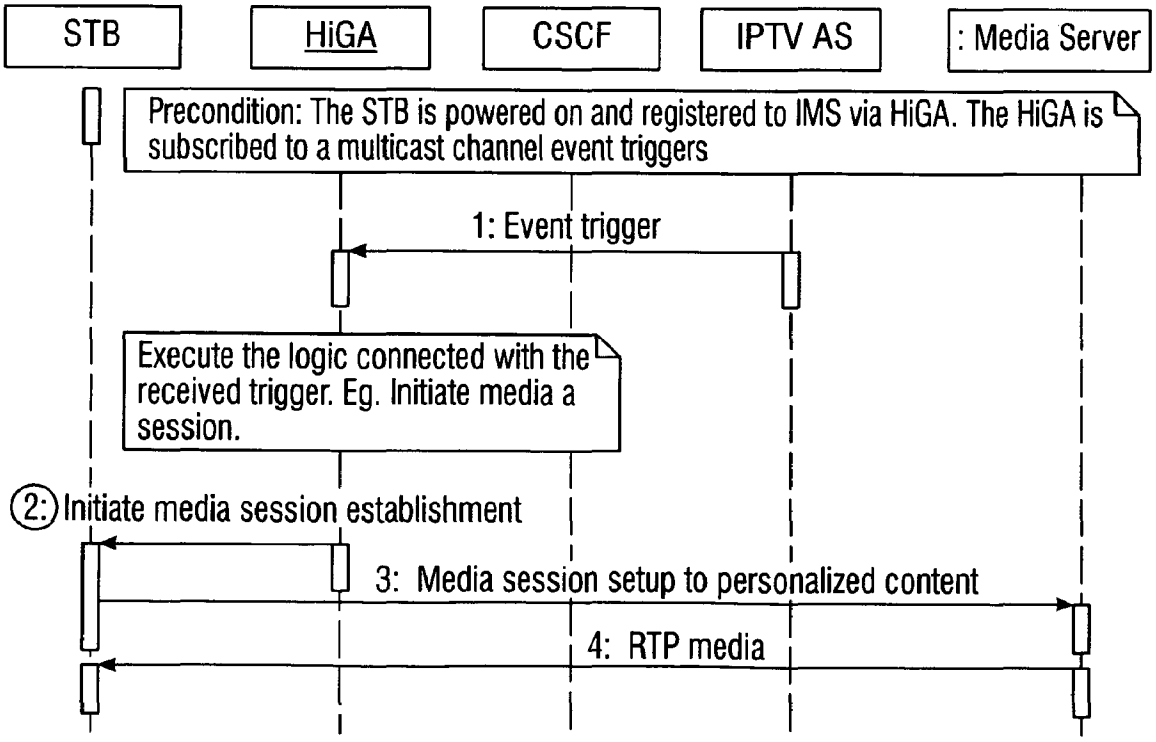


Fig. 4e

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2007/002503

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04L29/06

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)
H04L

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 practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 419 774 A (ERICSSON TELEFON AB L M [SE]; ERICSSON TELEFON AB L M [SE]) 3 May 2006 (2006-05-03) abstract page 6, line 5 - page 9, line 11	1-35
X	US 2002/110104 A1 (SURDILA SORIN [CA] ET AL) 15 August 2002 (2002-08-15)	1,18,35
A	abstract paragraph [0021] - paragraph [0029]	2-17, 19-34
A	WO 2005/004404 A (THOMSON LICENSING SA [FR]; HUETTER INGO [DE]) 13 January 2005 (2005-01-13) abstract page 11, line 29 - page 12, line 22	1-35

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

☒ See patent family annex.

* Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 July 2007	12/07/2007

Name and mailing address of the ISA/	Authorized officer
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Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2419774 A	03-05-2006	CA 2583633 A1	04-05-2006
		WO 2006045706 A1	04-05-2006
US 2002110104 A1	15-08-2002	NONE	
WO 2005004404 A	13-01-2005	EP 1642418 A1	05-04-2006
		KR 20060023176 A	13-03-2006
		MX PA05014123 A	07-04-2006
		US 2006168354 A1	27-07-2006

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DOCUMENT-IDENTIFIER: WO 2007140834 A1
TITLE: IMS SERVICE PROXY IN HIGA
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APPL-NO: EP2007002503
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ABSTRACT:

CHG DATE=20071214 STATUS=O>The present invention relates to a communication system (SYS), a gateway apparatus (HiGA) and a method for allowing services of a first type provided by a communication server (IMS-S) to be provided to terminal devices (T1, T2, ... Tn ... TN) of a home network (CPN) independent of the fact whether the terminal devices are of a first type or a second type (IMS-based or non-IMS-based). The gateway apparatus (HiGA) comprises one or more service-specific mapping applications (AS) for adapting the control plane (SIP) used between the second type terminal devices (T2) to the control plane (HTTP) used between the gateway apparatus (HiGA) and the communication sever (IMS-S).

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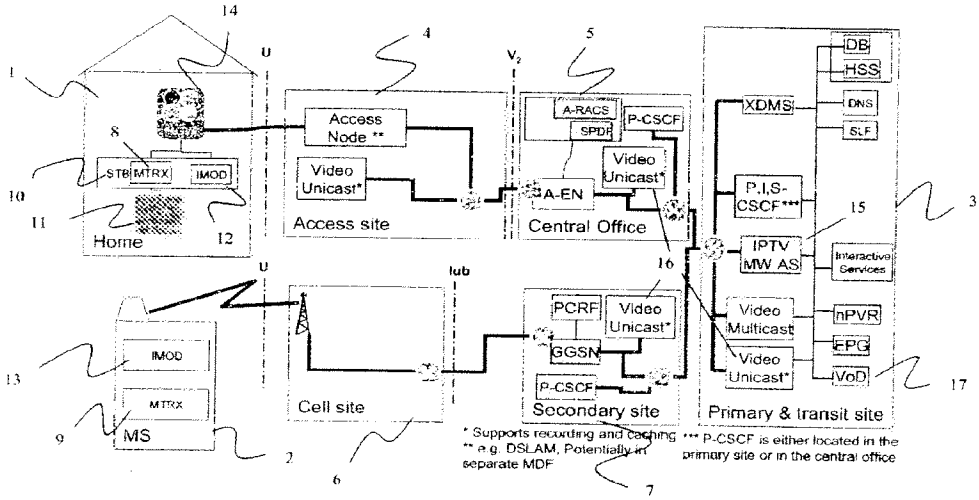
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Published:
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUSES FOR ESTABLISHING A SESSION BETWEEN A CLIENT TERMINAL AND A MEDIA SUPPLY SYSTEM TO TRANSPORT A UNICAST MEDIA STREAM OVER AN IP NETWORK



(57) Abstract: A method of setting up a session between a client terminal and a media supply system in order to transport a unicast media stream from the media supply system to the client terminal over an intervening IP network, the media supply system implementing the Real Time Streaming Protocol. The method comprises conducting a negotiation between the client terminal and the media supply system over an IP Multimedia Subsystem network in order to identify to the IP Multimedia Subsystem network the source and destination IP addresses and port numbers for the media stream, and subsequently sending Real Time Streaming Protocol messages from the client terminal to the media supply system in order to control the playout of media from the media supply system.

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3DOCID: <WO 2007140812A1 >

METHOD AND APPARATUSES FOR ESTABLISHING A SESSION BETWEEN A CLIENT TERMINAL AND A MEDIA SUPPLY SYSTEM TO TRANSPORT A UNICAST MEDIA STREAM OVER AN IP NETWORK

Technical Field

The present invention relates to establishing and controlling an IP unicast service and is applicable in particular, though not necessarily, to video-on-demand services.

Background

IP television or IPTV is the name given to a range of services which allow television to be delivered over an IP network. Due to the flexible nature of an IP network, IPTV will allow for a much more personalised service to users, e.g. video-on-demand, with information delivered to users over unicast IP streams. However, to order and control these user specific services, the user would normally be expected to use his or her remote control whilst sitting in front of a Set-Top-Box/TV. Currently the predominant way of controlling these unicast streams is to use the real time streaming protocol (RTSP). RTSP does not specify a transport protocol but may be used, for example, to establish and control real-time transport protocol (RTP) media streams. RTSP is in many ways similar to the HTTP protocol used to request and exchange information over the WWW, but is tailored for streaming media such as audio and video. RTSP allows for a client to request particular media streams from a streaming server, and specifies commands such as PLAY and PAUSE. RTSP is well suited to the conventional set-top-box use case.

It is expected that users of mobile terminals such as mobile telephones will wish to avail themselves of IPTV services. Indeed, this is probably key to the business models of network operators currently installing high capacity cellular networks such as 3G networks. Within cellular networks, IPTV is a service which will likely be facilitated by the so-called IP Multimedia Subsystem (IMS). IMS is the technology defined by the Third Generation Partnership Project (3GPP) to provide IP Multimedia services over mobile communication networks (3GPP TS 22.228, TS 23.218, TS 23.228, TS 24.228, TS 24.229, TS 29.228, TS 29.229, TS 29.328 and TS 29.329 Releases 5 to 7), although the IMS architecture is such that its services can be accessed and controlled via other

interfaces, for example the Internet. IMS makes use of the Session Initiation Protocol (SIP) to set up and control calls or sessions between user terminals, or user terminals and application servers. The Session Description Protocol (SDP), carried by SIP signalling, is used to describe and negotiate the media components of the session. Whilst SIP was created as a user-to-user protocol, IMS allows operators and service providers to control user access to services and to charge users accordingly.

It will be appreciated that IMS and RTSP can be considered as alternative approaches to the establishment and control of unicast streaming sessions. Whilst IMS provides a mechanism for controlling QoS and charging, as well as transcoder negotiation, RTSP supports trickplay and basic video-oriented commands.

Summary

According to a first aspect of the present invention there is provided a method of setting up a session between a client terminal and a media supply system in order to transport a unicast media stream from the media supply system to the client terminal over an intervening IP network, the media supply system implementing the Real Time Streaming Protocol, the method comprising:

conducting a negotiation between the client terminal and the media supply system over an IP Multimedia Subsystem network in order to identify to the IP Multimedia Subsystem network the source and destination IP addresses and port numbers for the media stream; and

subsequently sending Real Time Streaming Protocol messages from the client terminal to the media supply system in order to control the playout of media from the media supply system.

The media supply system may be implemented as one or more control servers plus one or more media unicast servers. In the case of video-on-demand, the former are video-on-demand control servers whilst the latter are video unicast servers.

Preferably, the IP Multimedia Subsystem network comprises a Proxy Call/Session Control Function (P-CSCF) allocated to the client terminal and through which all

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IMS/SIP signalling is routed.

Where the media supply system does not directly interface to the IP Multimedia Subsystem network, said negotiation may be carried out via a SIP application server of the IP Multimedia Subsystem network. The SIP application server provides for the translation of SIP messages received from the client terminal into Real Time Streaming Protocol messages for transmission to the media supply system.

Preferably, the IP Multimedia Subsystem network uses the identified source and destination IP addresses and port numbers to allocate resources for the unicast media stream. This will typically involve a Proxy Call/Session Control Function instructing a Border Gateway Function to open up a pinhole in respect of a media stream flowing between the source and destination IP addresses and port numbers.

The invention is applicable in particular to the case where the client terminal is a mobile terminal, for example a cellular telephone.

According to one embodiment of the present invention, the message flow associated with the negotiation step comprises:

A SIP INVITE sent from the client terminal to the SIP application server via a Proxy Call/Session Control Function;

An RTSP DESCRIBE sent from the SIP application server to the media supply system;

A 200 OK returned from the media supply system via the application server and the Proxy Call/Session Control Function.

In the case where the 200 OK identifies the source IP address and port number for the media source, this exchange completes the negotiation over the IMS. However, if this information is not contained in the 200 OK, the client terminal may send a SIP reINVITE to the application server via the Proxy Call/Session Control Function. The application server translates the reINVITE into an RTSP SETUP message and sends this to the media supply system. The media supply system returns a further 200 OK to the client terminal, via the application server and the Proxy Call/Session Control Function. The 200 OK contains the required address information which is observed by

the Proxy Call/Session Control Function.

In certain embodiments of the invention, the media supply system has an interface to the IP Multimedia Subsystem, in which case the SIP INVITE, and optionally SIP reINVITE, messages are sent directly to the media supply system.

According to a second aspect of the present invention there is provided a Session Initiation Protocol application server having an interface to an IP Multimedia Subsystem network and comprising:

means for receiving a Session Initiation Protocol request from a client terminal over the IP Multimedia Subsystem network;

means for processing the received request to generate a Real Time Streaming Protocol message; and

means for forwarding said Real Time Streaming Protocol message to a media supply system.

Said Session Initiation Protocol request may be a Session Initiation Protocol INVITE, said means for processing being arranged to translate the message into a Real Time Streaming Protocol DESCRIBE.

The server may further comprise means for receiving a 200 OK response to said Real Time Streaming Protocol message from the media supply system, modifying the SDP of the response to include the source IP address and port number of a requested media stream, and sending the modified 200 OK to the client terminal.

Alternatively, the server may comprise means for receiving a 200 OK response to said Real Time Streaming Protocol message from the media supply system, for responding to the media supply system with a request for further information, for receiving a further 200 OK message containing the requested information and modifying the response before forwarding it to the client terminal.

Said Session Initiation Protocol request may be a Session Initiation Protocol reINVITE, said means for processing being arranged to translate the message into a Real Time

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Streaming Protocol SETUP.

According to a third aspect of the present invention there is provided a media supply system having an interface to an IP Multimedia Subsystem network and comprising:

means for receiving a Session Initiation Protocol request for a media stream from a client terminal over the IP Multimedia Subsystem network;

means for responding to receipt of said Session Initiation Protocol request by identifying to the IP Multimedia Subsystem network the source IP addresses and port numbers of the media stream; and

means for subsequently receiving and acting upon Real Time Streaming Protocol messages sent by the client terminal.

In an embodiment of the invention, the media supply system is a video-on-demand system.

According to a fourth aspect of the present invention there is provided a client terminal comprising:

first processing means for implementation IP Multimedia Subsystem/Session Initiation Protocol client functionality;

second processing means for implementing the Real Time Streaming Protocol for controlling a media supply system; and

third processing means for establishing a unicast media stream from the media supply system to the client terminal by using IP Multimedia Subsystem/Session Initiation Protocol signalling to inform the IP Multimedia Subsystem network of the source and destination IP addresses and port numbers for the media stream thereby allowing the IP Multimedia Subsystem to pass the media stream, and using Real Time Streaming Protocol messages to cause the media to be played out.

The client terminal may be a mobile terminal, for example a cellular telephone, or a fixed terminal.

Brief Description of the Drawings

Figure 1 illustrates schematically an IPTV topology architecture;

Figure 2 shows a signalling procedure for establishing a video-on-demand stream to a client terminal according to a first embodiment of the present invention;

Figure 3 shows a signalling procedure for establishing a video-on-demand stream to a client terminal according to a second embodiment of the present invention; and

Figure 4 shows a signalling procedure for establishing a video-on-demand stream to a client terminal according to a third embodiment of the present invention;

Detailed Description

A brief description of the architecture and operation of the IP Multimedia Subsystem (IMS) will aid in understanding embodiments of the present invention.

Call/Session Control Functions (CSCFs) operate as SIP proxies within the IMS. The 3GPP architecture defines three types of CSCFs: the Proxy CSCF (P-CSCF) which is the first point of contact within the IMS for a SIP client (typically residing in a user terminal); the Serving CSCF (S-CSCF) which provides services to the user that the user is subscribed to; and the Interrogating CSCF (I-CSCF) whose role is to identify the correct S-CSCF and to forward to that S-CSCF a request received from a SIP terminal via a P-CSCF.

A user registers with the IMS using the specified SIP REGISTER method. This is a mechanism for attaching to the IMS and announcing to the IMS the (IP) address at which a SIP user identity can be reached. The user receives a unique Uniform Resource Identifier (URI) from the S-CSCF to be used when it initiates a dialog. In 3GPP, when a SIP client performs a registration, the IMS authenticates the user (using the AKA procedure), and allocates a S-CSCF to that user from the set of available S-CSCFs. Whilst the criteria for allocating a S-CSCF is not specified by 3GPP, these may include load sharing and service requirements. It is noted that the allocation of an S-CSCF is key to controlling (and charging for) user access to IMS-based services.

During the registration process, it is the responsibility of the I-CSCF to select an S-

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CSCF if one is not already selected. The I-CSCF receives the required S-CSCF capabilities from the home network's Home Subscriber Server (HSS), and selects an appropriate S-CSCF based on the received capabilities. (It is noted that S-CSCF allocation is also carried out for a user by the I-CSCF in the case where the user is called by another party, and the user is not currently allocated an S-CSCF.) When a registered user subsequently sends a session request (e.g. SIP INVITE) to the IMS, the request will include the P-CSCF and S-CSCF URIs so that the P-CSCF is able to forward the request to the selected S-CSCF. This applies both on the originating and terminating sides (of the IMS). (For the terminating call the request will include the P-CSCF address and the User Equipment (UE) address.)

Within the IMS service network, Application Servers (ASs) are provided for implementing IMS service functionality. ASs provide services to end-users in an IMS system, and may be connected either as end-points over the 3GPP defined Mr interface, or "linked in" by an S-CSCF over the 3GPP defined ISC interface. In the latter case, Initial Filter Criteria (IFCs) are used by a S-CSCF to determine which ASs should be "linked in" during a SIP Session establishment. Different IFCs may be applied to different call cases. The IFCs are received by the S-CSCF from an HSS during the IMS registration procedure as part of a user's User Profile (UP). Certain ASs will perform actions dependent upon subscriber identities (either the called or calling subscriber, whichever is "owned" by the network controlling the AS). For example, in the case of call forwarding, the appropriate (terminating) application server will determine the new terminating party to which a call to a given subscriber will be forwarded.

Figure 1 presents an overview of the IPTV/IMS architecture illustrating the apparatus/functionality provisioned within the home 1 and the MS 2, which are attached respectively to the IMS 3 via a fixed access network 4/access network operator IMS network 5 and a wireless access network 6/Mobile operator IMS network 7. Network elements of interest here are:

MTRX – Media Transmission/Reception Part 8,9; The "traditional" Set Top Box functionalities in an IMS enabled Set Top Box 10, for example reception of MPEG2 and/or MPEG4 streams and conversion of such streams for delivery to a TV 11.

IMOD – Identity and IMS Module 12,13; The part of an IMS enabled Set Top Box that contains the basic IMS service logic and the ISIM. The IMOD could also be implemented in other devices in the home, e.g. the Residential Gateway (RGW) 14. The IMOD could also be implemented in a mobile phone, enabling remote access to TV services.

IPTV MW AS – IPTV Middleware SIP Application Server 15; The function that interacts between the IMS enabled STB and MS (and other IMS user devices) and the IPTV video servers. The IPTV MW AS also receives and processes HTTP and RTSP messages.

Video Unicast – the video unicast servers 16. These are the sources of unicast (streaming) media and are distributed across the IP network. In particular, video unicast servers are located in the primary and transit network and in the central office and secondary site.

VoD – Video-on-demand (control) server 17. This server controls access to and playout from the distributed video unicast servers.

MTRX and the IMOD entities will be present within STBs that are used to access the IPTV service via the IMS. In addition, and as illustrated in the Figure 1, these entities are present within a Mobile Station (MS) or user terminal, which could for example be a cellular telephone. It will be appreciated that the MS may be present within an IMS network of an operator that is not the operator of the IPTV provider.

Figure 2 illustrates a procedure for establishing and controlling a video-on-demand session between a client terminal and a unicast server over the IMS networks. In the figure, the client terminal is represented by the relevant functional entities; IMOD/MTRX, whilst the unicast server and the VoD node are combined into a single entity referred to as the "VoD system". In the following discussion, the client terminal is assumed to be a mobile station (MS). All IP traffic sent to and from the MS is routed through a GPRS Gateway Support Node (GGSN) of the secondary site which enforces an access policy specified by a Proxy Call/Session Control Function (P-CSCF), the policy rules having been previously downloaded to the P-CSCF at user registration.

The procedure can be broken down into the following stages:

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The client terminal includes a web browser, and knows the web address (URL) of the VoD system. Using the browser interface, the client acquires from the VoD system an electronic programming guide (EPG) detailing available streamed programs, as well as pricing information for a selected program.

1. The user makes a selection from the displayed EPG to obtain a VoD title list.
2. IPTV MW AS requests a VoD title list from the VoD system.
3. VoD system returns VoD title list in XML format.
4. IPTV MW AS builds and returns an HTML page to IMOD.
5. The user selects a VoD title, and sends an HTTP request to the IPTV MW AS.
6. The IPTV MW AS requests description information from the VoD system.
7. The VoD description is returned.
8. The IPTV MW AS returns an HTML page to the user, requesting confirmation that the price and title are acceptable to the user.

Using the SIP INVITE method, the client terminal invites the VoD system to join a SIP session. [It is assumed that the client terminal has previously registered with the IMS.]

9. Assuming that the user agrees to the displayed proposal, the IMOD sends a SIP INVITE message to invite the IPTV MW AS. The message contains an initial SDP as set out in Table 1, item "Step 9-10". Items of interest in the example SDP are the IP address of the client terminal, "IP4 10.0.0.1", a URL identifying the streaming media required, "RTSP://www.op.com/VoD/123456", and the media transport protocol, "RTP", and destination port number at the client terminal, "491". [The SDP included in the SIP INVITE is essentially the same as the SDP that would be included in an RTSP DESCRIBE message to obtain details of a VoD service.]
10. When the SIP INVITE message passes through the P-CSCF, the P-CSCF inspects the SDP message and stores initial state information accordingly.
11. The MW-AS extracts the necessary information from the SIP INVITE message, i.e. the URL of the required media stream, constructs an RTSP DESCRIBE message, and sends this to the VoD system. The IPTV MW-AS stores the SDP info for later use. Example content of the DESCRIBE message is shown in

Table 1 below, item "Step 11".

12. A 200 OK message is returned from the VoD system. This message contains an SDP message describing relevant information about the session that is being established. It is assumed here that the message header contains the source IP address and port number for the media source. Example content is shown in Table 1 below, see item "Step 12", where the source IP address for the requested media is "IP4 168.0.0.1", and the source port number is "90". The SDP also identifies the required bandwidth for the session, i.e. "3500" or 3.5Mbits/second.
13. The IPTV MW AS incorporates the media source IP address and port number (from the message header) into the SDP, See Table 1 below, item "Step 13".
14. When the 200 OK message passes through the P-CSCF it notes the necessary socket information (IP address and port number) from the SDP, along with the stored state information and informs a border gateway function BGF (i.e. GGSN) about the pinhole to open, via an H.248 request. See Figure below for SDP information.
15. The BGF opens the pinhole (IP/port source/dest configuration) and reserves the appropriate amount of bandwidth.
16. A 200 OK message is returned to IMOD.

The client terminal reverts to RTSP to reserve resources for the streaming session at the VoD system, and to cause the VoD system to play out the streamed media.

17. The IMOD sends an RTSP SETUP to IPTV MW AS using the control connection that already exists. An example message structure is illustrated in Table 1 below, see item "Step 17-18".
18. The IPTV MW AS sends an RTSP SETUP message to VoD.
19. A 200 OK message is returned from the video server. An example message structure is shown in Table 1 below, see item "step 19-20".
20. A 200 OK message is returned to IMOD.
21. The IMOD Starts playback by sending an RTSP PLAY command to the MW AS.
22. The IPTV MW AS performs relevant authentication and accounting (AA) actions and proxies the play request to the video server.

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23. The video server responds with a 200 OK
24. The IPTV MW AS forwards the 200 OK to the IMOD.
25. IPTV MW AS performs an event accounting request to the IMS event charging function ECF.
26. A response is sent from the IMS ECF to the MW AS.

Streamed media and control signals are played out over the established session.

27. The MTRX receives RTP stream from video server.

Using RTSP, the session is terminated, and resources released at the VoD system.

28. The video session is torn down with RTSP TEARDOWN.
29. The command is proxied to the VoD system by the MW AS.
30. 200 OK.
31. 200 OK.

The SIP session is terminated and resources released.

32. The SIP session is closed with a SIP BYE.
33. Sip BYE.
34. 200 OK.
35. The pinhole is closed and bandwidth freed with an H.248 request.
36. OK.
37. 200 OK.

As already mentioned, the procedure of Figure 2 assumes that the 200 OK message at step 12, sent from the VoD system to the IPTV MW AS, contains the IP address and port number of the media source. In practice, this is unlikely to be the case. In order to force the VoD system to provide this information to the client terminal, and the P-CSCF, the procedure illustrated in Figure 4 may be implemented, where it is assumed that the SDP of the 200 OK (step 12) does not contain the IP address and port number of the media source. Upon receipt of the 200 OK, the client terminal will send at step

15 a reINVITE requesting further information on the media source. This message replaces the RTSP SETUP message of the procedure of Figure 2, forcing the resource reservation request to go via the P-CSCF. The reINVITE message is "translated" at the IPTV MW AS into an RTSP SETUP message. The 200 OK response generated by the VoD server now contains the media source address and port number, and necessarily travels back to the client terminal via the P-CSCF. The P-CSCF is able to inform the BGF to open up the appropriate pinhole (steps 20 and 21). From step 23 onwards, the message flow is as described above with reference to Figure 2.

The procedure of Figure 4 may be simplified by enabling the IPTV MW AS to recognise when an initial 200 OK message returned by the VoD system is insufficient. In this case, the MW AS itself generates the necessary RTSP SETUP (step 17), avoiding the need for signalling steps 13 to 16.

Figure 5 illustrates a signalling procedure associated with a further embodiment of the invention. According to this embodiment, the VoD system (i.e. VoD server) is IMS compatible, and there is no requirement to route IMS SIP signalling via an IPTV MW AS.

In the procedure of Figure 5, it is assumed that the first 200 OK from the VoD system does not identify the media source and therefore that the reINVITE method is required (as per Figure 4).

It will be appreciated by the person of skill in the art that various modifications may be made to the above described embodiments without departing from the scope of the present invention.

ISDOCID: <WO_ 2007140812A1 >

```
Step 9-10:
IMOD->MW AS:INVITE <.... SIP details skipped>
           Content-Type: application/sdp
           Content-Length: 56
           v=0
           o= 2890844526 2890842807 IN IP4 10.0.0.1
           s=VoD1234
           u=RTSP://www.op.com/VoD/123456
           c=IN IP4 10.0.0.1
           m=video 49170 RTP/AVP 98 32
           a=rtpmap:98 H264/90000

Step 11:
MW AS->VoD: DESCRIBE RTSP://www.op.com/VoD/123456 RTSP/1.0
           CSeq: 1

Step 12
VoD->MW AS: RTSP/1.0 200 OK
           CSeq: 1
           Content-Type: application/sdp
           Content-Length: 164

           v=0
           o=- 2890844256 2890842807 IN IP4 168.0.0.1
           s=RTSP Session
           i=An Example of RTSP Session Usage
           a=control:RTSP://www.op.com/VoD/123456
           t=0 0
           m=video 9000 RTP/AVP 98
           a=rtpmap:98 H264/90000
           a=fmtp:98 profile-level-id=42A01E; packetization-mode=0;
           sprop-parameter-sets=Z0IACpZTBYmI,aMljiA==
           b=AS:3500

Step 13
MW AS->IMOD:200 OK <SIP details skipped>

           v=0
           o=- 2890844256 2890842807 IN IP4 168.0.0.1
           c=IN IP4 10.0.0.1
           s=RTSP Session
           i=An Example of RTSP Session Usage
           a=control:RTSP://www.op.com/VoD/123456
           t=0 0
           m=video 9000 RTP/AVP 98
           a=rtpmap:98 H264/90000
           a=fmtp:98 profile-level-id=42A01E; packetization-mode=0;
           sprop-parameter-sets=Z0IACpZTBYmI,aMljiA==
           b=AS:3500
Step 17-18
IMOD->MW->VoD: SETUP rtsp://foo/twister/audio RTSP/1.0
           CSeq: 2
           Transport: RTP/AVP;unicast;client_port=49170-49171

Step 19-20
VoD->MW->IMOD: RTSP/1.0 200 OK
           CSeq: 2
           Transport: RTP/AVP;unicast;client_port=49170-49171;
                      server_port=9000-9001
           Session: 12345678
```

Table 1

CLAIMS:

1. A method of setting up a session between a client terminal and a media supply system in order to transport a unicast media stream from the media supply system to the client terminal over an intervening IP network, the media supply system implementing the Real Time Streaming Protocol, the method comprising:

conducting a negotiation between the client terminal and the media supply system over an IP Multimedia Subsystem network in order to identify to the IP Multimedia Subsystem network the source and destination IP addresses and port numbers for the media stream; and

subsequently sending Real Time Streaming Protocol messages from the client terminal to the media supply system in order to control the playout of media from the media supply system.

2. A method according to claim 1, the media supply system comprising one or more control servers plus one or more media unicast servers.

3. A method according to claim 2, wherein said media stream is a video-on-demand stream and the or each control server is a video-on-demand control server and the or each media unicast server is a video unicast server.

4. A method according to any one of the preceding claims, the IP Multimedia Subsystem network comprising a Proxy Call/Session Control Function allocated to the client terminal and through which all IMS/SIP signalling is routed.

5. A method according to claim 4, wherein said negotiation is carried out via a SIP application server of the IP Multimedia Subsystem network, the SIP application server translating SIP messages received from the client terminal into Real Time Streaming Protocol messages for transmission to the media supply system.

6. A method according to any one of the preceding claims, wherein the IP Multimedia Subsystem network uses the identified source and destination IP addresses and port numbers to allocate resources for the unicast media stream.

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7. A method according to claim 6, wherein a Proxy Call/Session Control Function instructs a Border Gateway Function to open up a pinhole in respect of a media stream flowing between the source and destination IP addresses and port numbers.

8. A method according to any one of the preceding claims, said client terminal being a mobile terminal.

9. A method according to claim 1, said negotiation comprising the steps of:
sending a SIP INVITE sent from the client terminal to a SIP application server via a Proxy Call/Session Control Function;
sending an RTSP DESCRIBE from the SIP application server to the media supply system;
sending a 200 OK from the media supply system via the application server and the Proxy Call/Session Control Function.

10. A method according to claim 9, wherein said 200 OK identifies the source IP address and port number for the media source.

11. A method according to claim 9, wherein said 200 OK does not identify the source IP address and port number for the media source, and, in response to receiving the 200 OK, the client terminal sends a SIP reINVITE to the application server via the Proxy Call/Session Control Function, the application server translating the reINVITE into an RTSP SETUP message and sending this to the media supply system, whereupon the media supply system returns a further 200 OK to the client terminal, via the application server and the Proxy Call/Session Control Function, this further 200 OK containing the required address information which is observed by the Proxy Call/Session Control Function.

12. A method according to claim 9, wherein said 200 OK does not identify the source IP address and port number for the media source, and, in response to receiving the 200 OK, the application server sends an RTSP SETUP message to the media supply system, the media supply system returning a further 200 OK containing the required

address information.

13. A method according to any one of the preceding claims, wherein the media supply system has an interface to the IP Multimedia Subsystem and SIP INVITE and/or REINVITE messages are sent directly to the media supply system.

14. A Session Initiation Protocol application server having an interface to an IP Multimedia Subsystem network and comprising:

means for receiving a Session Initiation Protocol request from a client terminal over the IP Multimedia Subsystem network;

means for processing the received request to generate a Real Time Streaming Protocol message; and

means for forwarding said Real Time Streaming Protocol message to a media supply system.

15. An application server according to claim 14, wherein said Session Initiation Protocol request is a Session Initiation Protocol INVITE, said means for processing being arranged to translate the message into a Real Time Streaming Protocol DESCRIBE.

16. An application server according to claim 14 or 15, the server comprising means for receiving a 200 OK response to said Real Time Streaming Protocol message from the media supply system, modifying the SDP of the response to include the source IP address and port number of a requested media stream, and sending the modified 200 OK to the client terminal.

17. An application server according to claim 14 or 15, the server comprising means for receiving a 200 OK response to said Real Time Streaming Protocol message from the media supply system, for responding to the media supply system with a request for further information, for receiving a further 200 OK message containing the requested information and modifying the response before forwarding it to the client terminal.

18. An application server according to claim 14, wherein said Session Initiation

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Protocol request is a Session Initiation Protocol reINVITE, said means for processing being arranged to translate the message into a Real Time Streaming Protocol SETUP.

19. A media supply system having an interface to an IP Multimedia Subsystem network and comprising:

means for receiving a Session Initiation Protocol request for a media stream from a client terminal over the IP Multimedia Subsystem network;

means for responding to receipt of said Session Initiation Protocol request by identifying to the IP Multimedia Subsystem network the source IP addresses and port numbers of the media stream; and

means for subsequently receiving and acting upon Real Time Streaming Protocol messages sent by the client terminal.

20. A system according to claim 19, the system being a video-on-demand system.

21. A client terminal comprising:

first processing means for implementation IP Multimedia Subsystem/Session Initiation Protocol client functionality;

second processing means for implementing the Real Time Streaming Protocol for controlling a media supply system; and

third processing means for establishing a unicast media stream from the media supply system to the client terminal by using IP Multimedia Subsystem/Session Initiation Protocol signalling to inform the IP Multimedia Subsystem network of the source and destination IP addresses and port numbers for the media stream thereby allowing the IP Multimedia Subsystem to pass the media stream, and using Real Time Streaming Protocol messages to cause the media to be played out.

22. A terminal according to claim 21, the terminal being a mobile terminal.

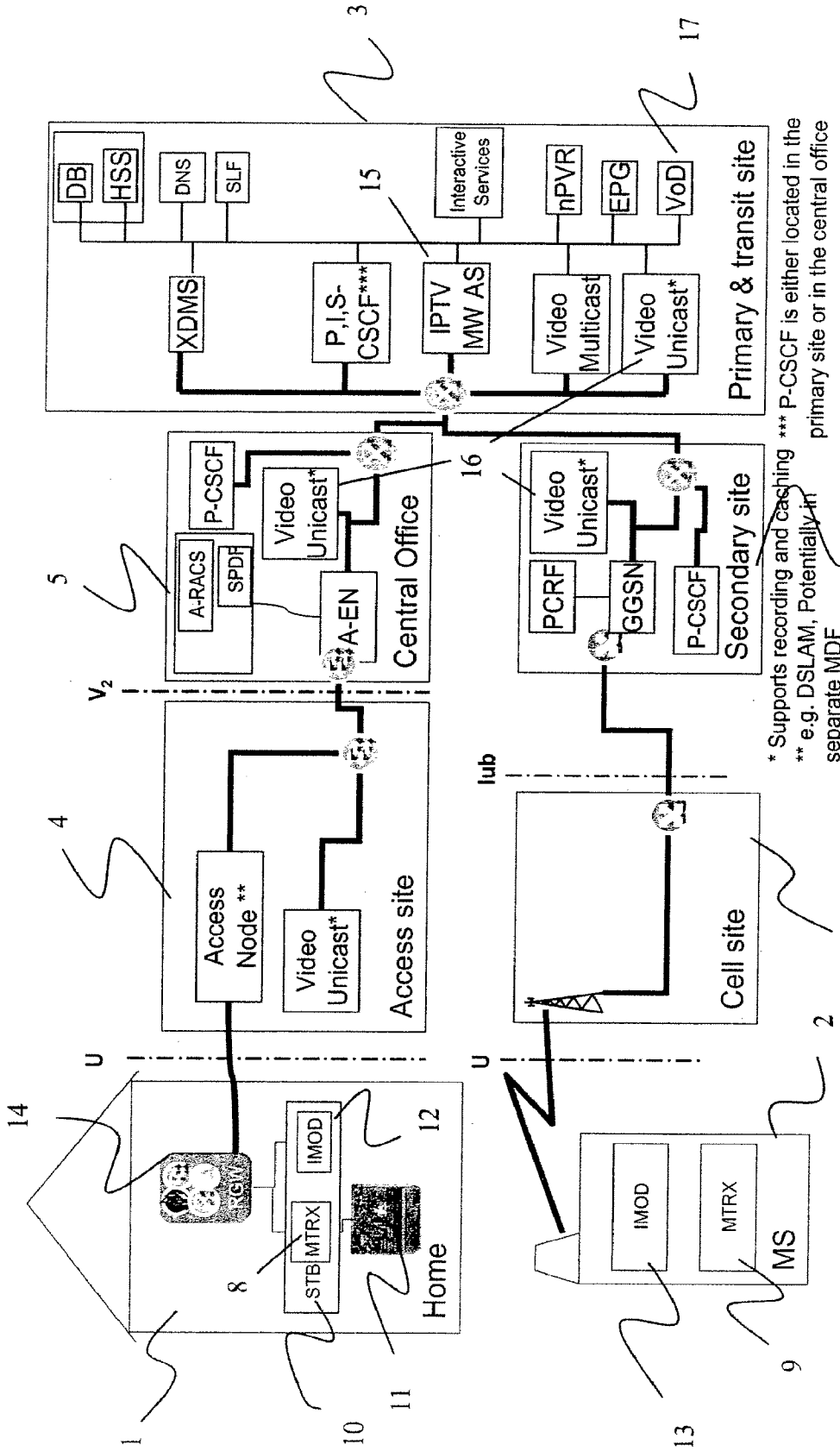


Figure 1

SDOCID: <WO 2007140812A1 I >

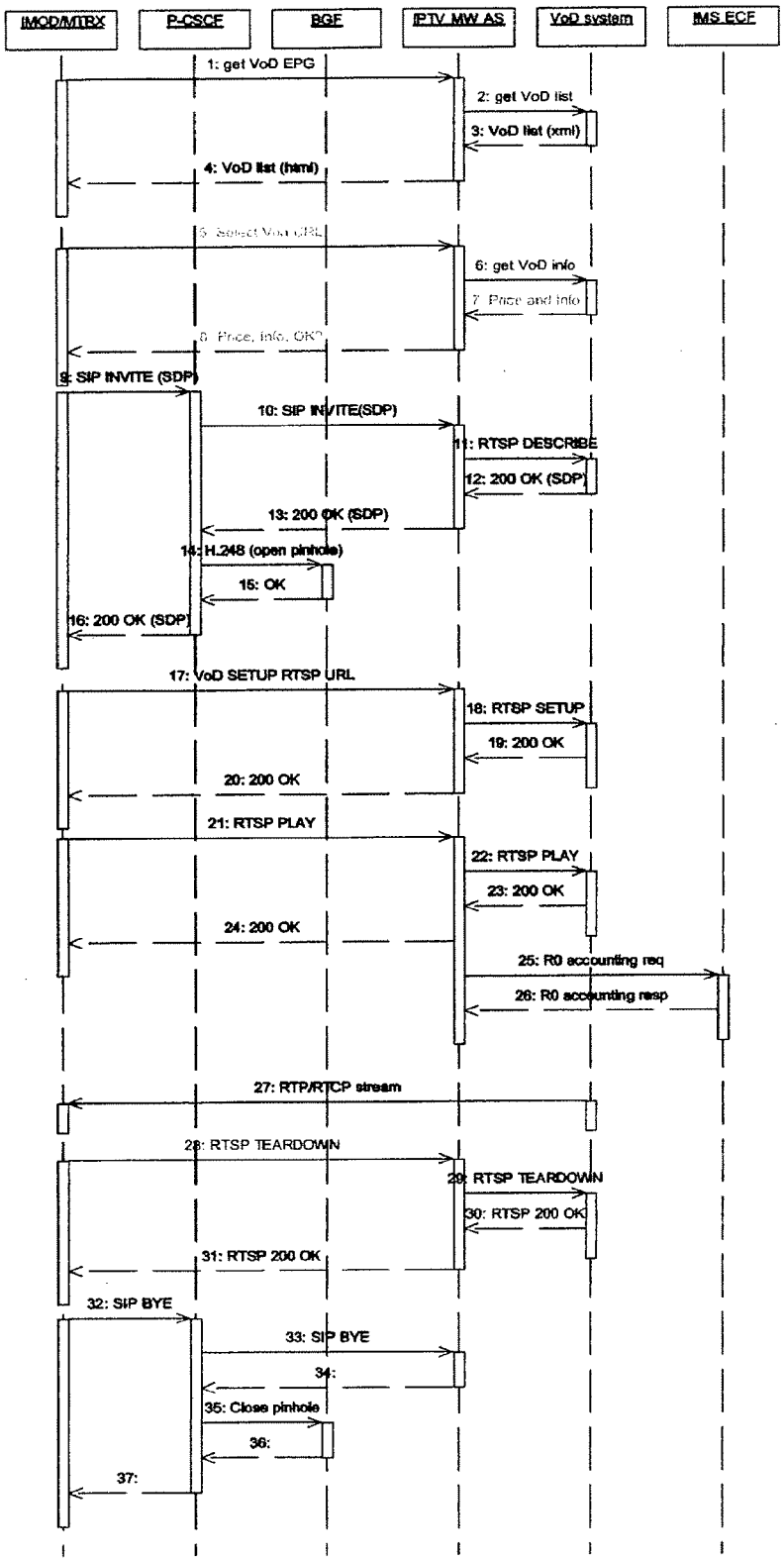

iMOD/MTRX
P-CSCF
BGF
IPTV MW AS
VoD system
IMS ECF
1: get VoD EPG
2: get VoD list
3: VoD list (xml)
4: VoD list (html)
5: Select VoD URL
6: get VoD info
7: Price and info
8: Price, info, OK?
9: SIP INVITE (SDP)
10: SIP INVITE(SDP)
11: RTSP DESCRIBE
12: 200 OK (SDP)
13: 200 OK (SDP)
14: H.248 (open pinhole)
15: OK
16: 200 OK (SDP)
17: VoD SETUP RTSP URL
18: RTSP SETUP
19: 200 OK
20: 200 OK
21: RTSP PLAY
22: RTSP PLAY
23: 200 OK
24: 200 OK
25: R0 accounting req
26: R0 accounting resp
27: RTP/RTCP stream
28: RTSP TEARDOWN
29: RTSP TEARDOWN
30: RTSP 200 OK
31: RTSP 200 OK
32: SIP BYE
33: SIP BYE
34:
35: Close pinhole
36:
37:

Figure 2

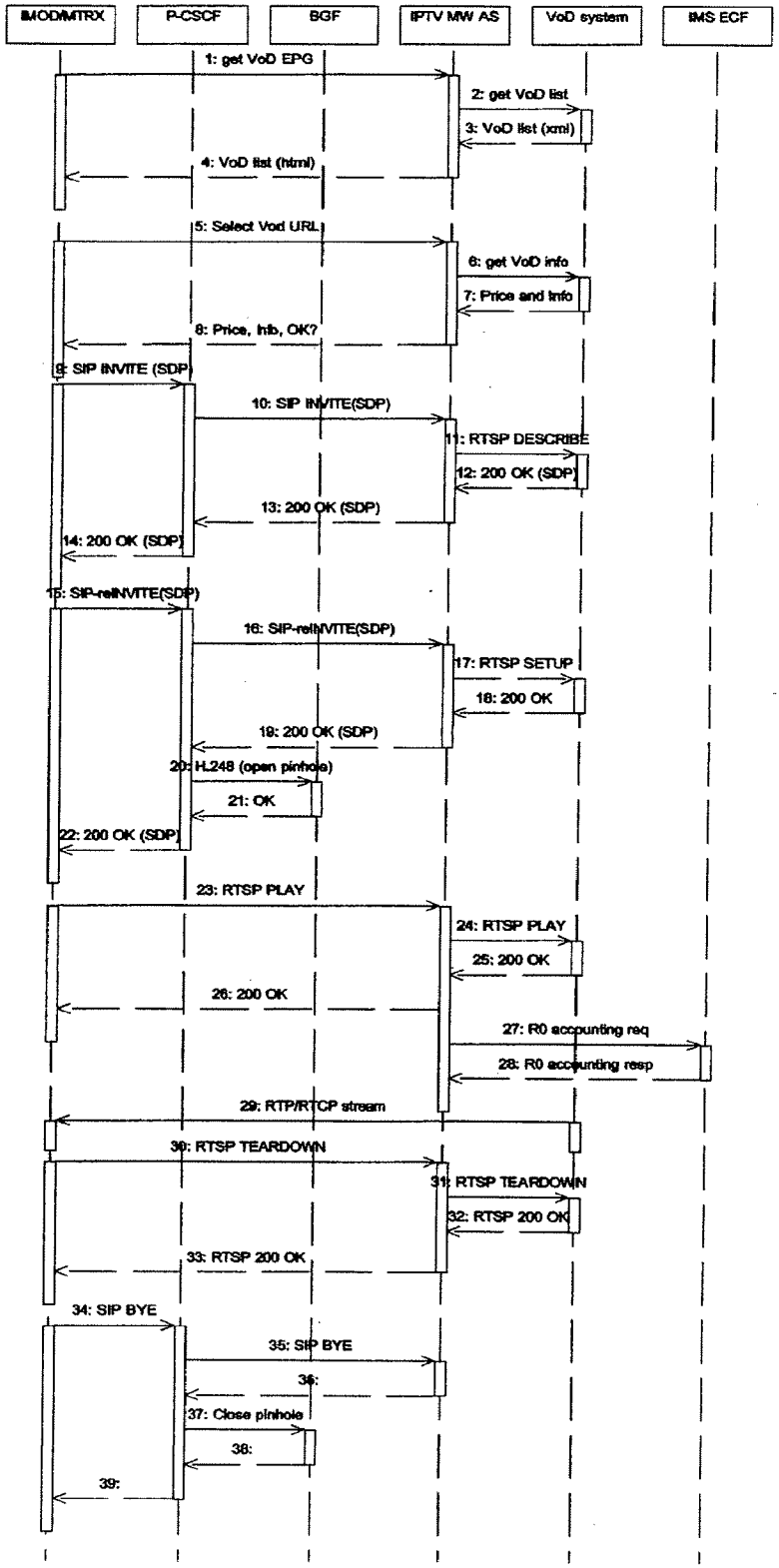


Figure 3

SDOCID: <WO 2007140812A1 I >

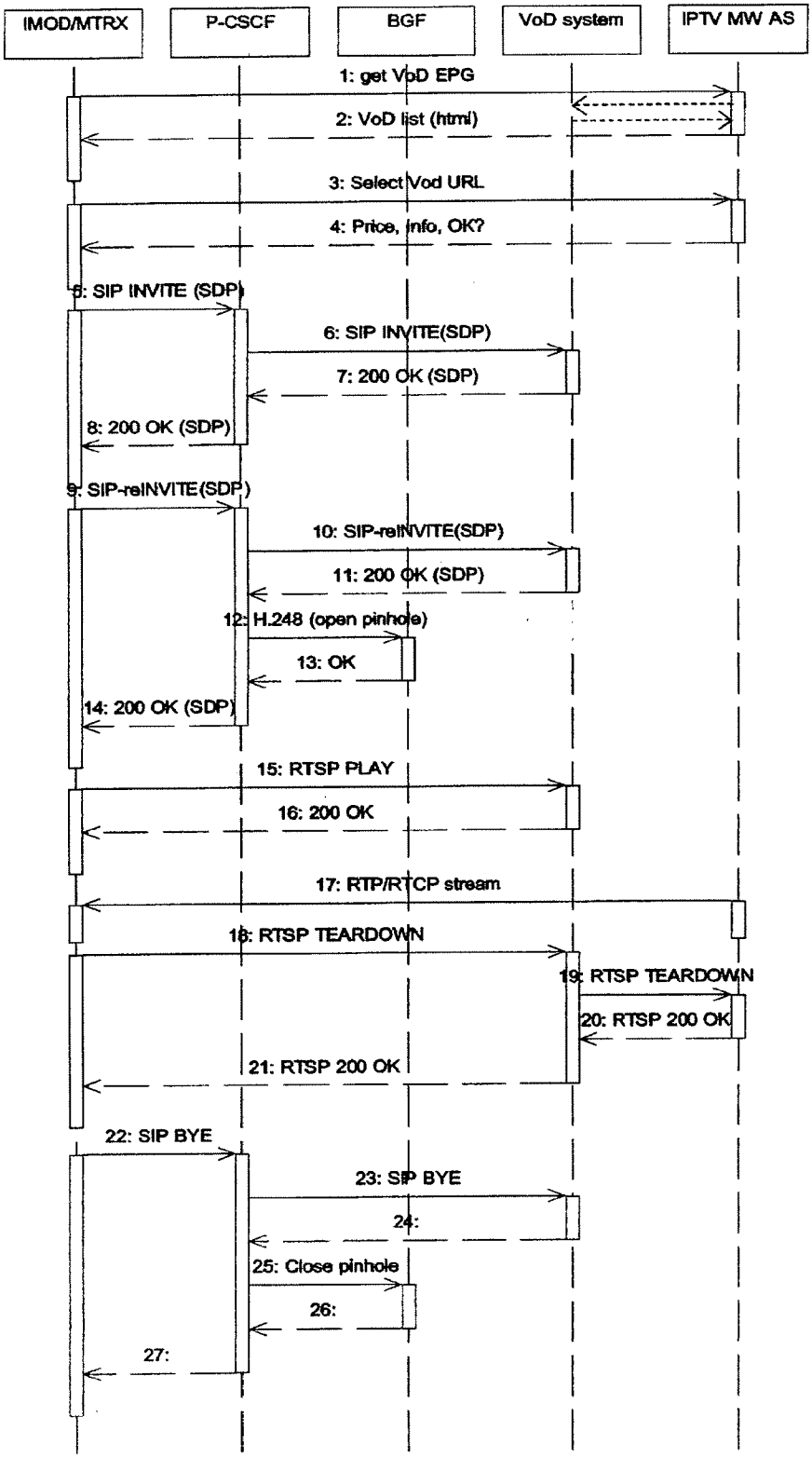

IMOD/MTRX
P-CSCF
BGF
VoD system
IPTV MW AS
1: get VoD EPG
2: VoD list (html)
3: Select Vod URL
4: Price, info, OK?
5: SIP INVITE (SDP)
6: SIP INVITE(SDP)
7: 200 OK (SDP)
8: 200 OK (SDP)
9: SIP-reINVITE(SDP)
10: SIP-reINVITE(SDP)
11: 200 OK (SDP)
12: H.248 (open pinhole)
13: OK
14: 200 OK (SDP)
15: RTSP PLAY
16: 200 OK
17: RTP/RTCP stream
18: RTSP TEARDOWN
19: RTSP TEARDOWN
20: RTSP 200 OK
21: RTSP 200 OK
22: SIP BYE
23: SIP BYE
24:
25: Close pinhole
26:
27:

Figure 4

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2006/062880

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04L29/06

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)
H04L

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 practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/184432 A1 (GATEVA RALITSA [US] ET AL) 23 September 2004 (2004-09-23) paragraph [0001] - paragraph [0064]; figures 1,2	1-22
X	EP 1 619 853 A (SIEMENS MOBILE COMM SPA [IT]) 25 January 2006 (2006-01-25) paragraph [0001] - paragraph [0038]; figures 4,5	1-4,8

-/--

[X] Further documents are listed in the continuation of Box C.

[X] 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 document but published on or after the international filing date

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 February 2007	05/03/2007

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Günther, Steffen

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

SDOCID: <WO 2007140812A1 I >

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	"Universal Mobile Telecommunications System (UMTS); Transparent end-to-end Packet-switched Streaming Service (PSS); Protocols and codecs (3GPP TS 26.234 version 6.6.0 Release 6); ETSI TS 126 234" ETSI STANDARDS, EUROPEAN TELECOMMUNICATIONS STANDARDS INSTITUTE, SOPHIA-ANTIPO, FR, vol. 3-SA4, no. V660, December 2005 (2005-12), pages 1-41, XP014032641 ISSN: 0000-0001 paragraph [001.] - paragraph [002.] paragraph [5.3.] - paragraph [5.3.3.1.]	1-22
A	"Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); IP Multimedia Subsystem (IMS); Stage 2 (3GPP TS 23.228 version 6.12.0 Release 6); ETSI TS 123 228" ETSI STANDARDS, EUROPEAN TELECOMMUNICATIONS STANDARDS INSTITUTE, SOPHIA-ANTIPO, FR, vol. 3-SA2, no. V6120, December 2005 (2005-12), pages 1-183, XP014032466 ISSN: 0000-0001 paragraph [004.] - paragraph [4.7.] paragraph [5.14.] - paragraph [5.14.3.]	1-22

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2006/062880

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004184432 A1	23-09-2004	NONE	
EP 1619853 A	25-01-2006	WO 2006007929 A1	26-01-2006

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(54) Accessing interactive services over internet

(57) The invention relates to a method of providing interactive services through a telecommunications network. In the method an audio/visual (A/V) stream and control data is exchanged between an application server (9) and a multiplexing and access control module (7) of the telecommunications network, by means of a multimedia bidirectional interactive protocol. Internet protocol television (IPTV) service protocols are implemented within the telecommunications network for communicating with customer premises television equipment (1), wherein the IPTV protocols include a streaming protocol for transmission to customer premises television equipment (1) of an A/V stream received from the application server (9) and a monodirectional interactive protocol for receiving user commands at the multiplexing and access control module (7). The user commands are further converted into messages of the bidirectional interactive protocol for transmission to the application server (9) and response data is relayed from the application server (9) to the customer premises television equipment (1) from which the user command originates.

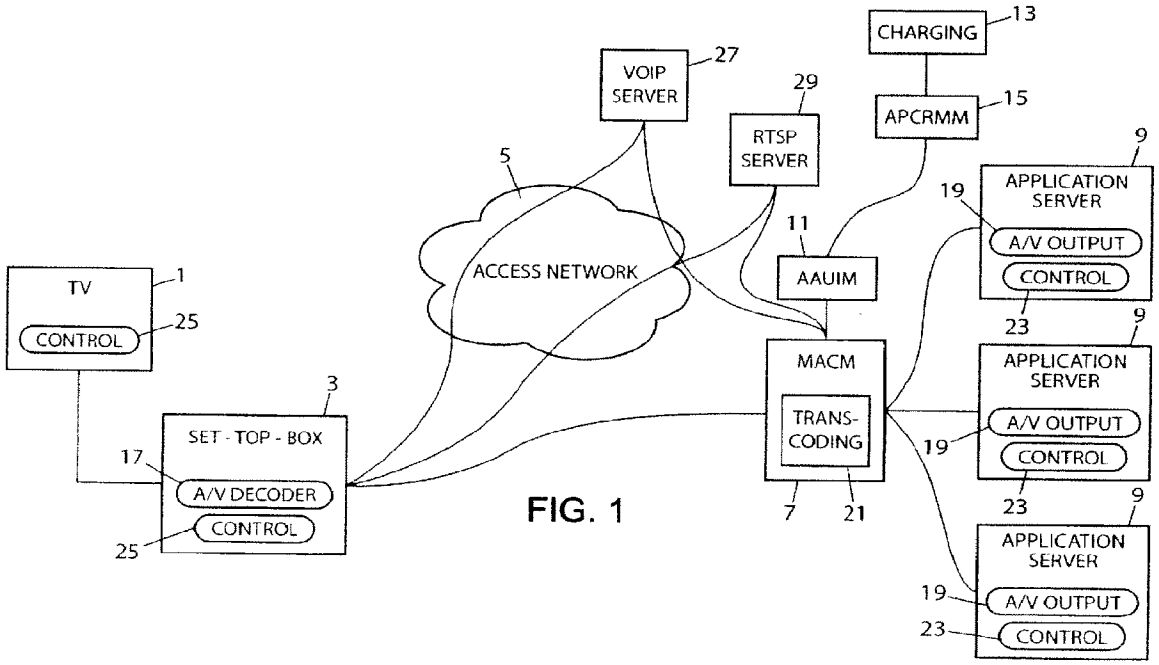


FIG. 1

EP 1 890 463 A1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a method for a customer terminal to access interactive services over the Internet. The invention also relates to a corresponding system, multiplexing and access control module and software program product.

BACKGROUND OF THE INVENTION

[0002] Multimedia application developers create interactive services for customers equipped with third generation (3G) wireless terminals. Such services are typically offered as premium rate services and implemented by means of bidirectional interactive protocols, and especially real-time protocols, of which the most common examples are SIP ("Session Initiation Protocol") as specified by the IETF ("Internet Engineering Task Force") and H.323 / H.243M as specified by the ITU ("International Telecommunications Union"). The same protocols are also used to provide videoconference services. Generally, bidirectional protocols are optimized for symmetric communication, i.e. where both sides can act as a client and a server using the same commands defined in the symmetric communication protocol, e.g. SIP or H.323. A real-time protocol is optimized for the transmission of information with minimal latency, typically low enough to make conversational applications possible, e.g. SIP uses real-time transport protocol (RTP) and NOTIFY/INFO as real-time transport protocol for media and user events; H.323 uses RTP and H.245 User Input Indication as real-time transport protocol for media and user events.

[0003] Another popular type of multimedia service relates to the delivery of television programs over Internet protocol (IP) networks (IPTV). Such services are generally proposed by Internet service providers (ISPs). Digital TV broadcast over broadband networks makes use of the MPEG ("Moving Picture Expert Group") standards for audio, video and system aspects. The broadcaster also sends some navigation data enabling the customer to select which programs or portions of the broadcast media stream are to be displayed. In video-on-demand (VOD) services, the hypertext transfer protocol (HTTP) is used in parallel with the real time streaming protocol (RTSP) channel conveying the MPEG media streams to provide some interactivity by which the customer can select programs to be sent by the VOD platform, which acts as a content server to the customer equipment, which acts as a content client and have access to certain limited client/server commands such as pause, fast forward, etc. Such a system offers only very limited interactivity as only commands predefined by RTSP protocol to the VOD server can be used. This is not suitable, for example, to enter user-specific data or to provide access to diversified remote applications possibly running on servers operated by 3rd party interactive application providers.

[0004] Currently, a premium rate service developed for multimedia terminals such as videophones or 3G handsets is not accessible to customers who only have television equipment connected to a digital network via a set-top-box or similar interface unit. In view of the large number of potential customers having such equipment, there is a need for a technique that would facilitate the development of interactive applications accessible with such equipment.

SUMMARY OF THE INVENTION

[0005] One object of the invention is to mitigate or overcome the above identified limitations. More specifically, a more advanced method for an end-user to access interactive services over the Internet has been invented.

[0006] According to a first aspect of the invention there is proposed a method of providing interactive services through a telecommunications network, the method comprising the steps of:

- exchanging an audio/visual (A/V) stream and control data between an application server and a multiplexing and access control module of the telecommunications network, by means of a bidirectional interactive protocol;
- implementing protocols of an Internet protocol television (IPTV) service within the telecommunications network for communicating with customer premises television equipment, wherein the IPTV protocols include a streaming protocol for transmission to customer equipment of an A/V stream received from the application server and a monodirectional interactive protocol for receiving user commands at the multiplexing and access control module;
- converting the user commands into messages of the bidirectional interactive protocol for transmission to the application server; and
- relaying response data from the application server to the customer premises television equipment from which the user command originates.

[0007] By monodirectional protocol it is meant a protocol with an identified client and server side, each supporting a different set of communication commands, e.g. HTTP.

[0008] The invention in accordance with an embodiment of the invention has the advantage that the applications can be accessed on demand, without a need for a complex installation process of the applications. The applications do not need to be maintained or updated and they do not become obsolete. Since the applications are provided by an application provider, the applications to be accessed can be very large and dynamic databases, for instance world maps. Furthermore, the invention enables access to almost any truly interactive applications with audio/visual user interfaces through the existing broadband Internet infrastructure.

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[0009] The invention also relates to a software program product comprising instructions for implementing the method according to the first aspect, when loaded and run on computer means of a network element.

[0010] The invention also relates to a multiplexing and access control module for providing interactive services through a telecommunications network as recited in claim 12.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Other features and advantages of the invention will become apparent from the description of non-limiting exemplary embodiments, with reference to the appended drawings, in which:

- Figure 1 is a block diagram of a communication system where the embodiments of the invention can be applied;
- Figures 2a and 2b are flow charts illustrating a method in accordance with a first embodiment of the invention;
- Figures 3a and 3b are flow charts illustrating a method in accordance with a second embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0012] Some non-limiting embodiments of the invention will be next described in more detail.

[0013] Fig. 1 represents a general network architecture in accordance with an embodiment of the invention. In Fig. 1 there is shown a customer terminal 1, such as a television set 1. The customer terminal 1 is communicatively connected to a customer premises equipment (CPE) or adaptation unit 3, such as a set-top-box 3. The customer terminal 1 is connected to an access network 5 through the set-top-box 3. In this example the access network is an Internet broadband network employing Internet protocol (IP) connecting the customer terminal 1 to application providers 9. In this example the application providers are servers connected to the Internet and the application providers have at least one application that can be remotely accessed.

[0014] The customer terminal 1 and the set-top-box 3 comprise control output 25 for sending control data to the network and the set-top-box 3 further comprises an audio/visual decoder (AN decoder) 17 for decoding information received in an A/V encoded format. Examples of A/V encoding formats are for instance MPEG2, MPEG 4 or H.263. The set-top-box 3 could also be physically integrated into the customer terminal 1.

[0015] The broadband IP access network 5 may use any technology capable of carrying IP traffic. Examples of such technologies are an asynchronous digital subscriber line (ADSL), synchronous digital subscriber line (SDSL), very-high-bit-rate digital subscriber line (VDSL) or any other DSL variant, data over cable service interface specification (DOCSIS) or any other cable transport scheme, wireless fidelity (WiFi), worldwide interoperability for microwave access (WiMax), universal terrestrial radio access network (UTRAN) or any other wireless data network.

[0016] Each application server 9 may comprise several applications, for instance application A, application B, etc., and these applications are deployed in multiple instances such as A1, A2, B1, B2, etc., within an interactive application farm. Each instance can be a physical machine, e.g. a computer, the physical resources necessary to generate the audio/visual (A/V) output streams necessary for the application, and access to any other resource required by the application, e.g. databases. For instance an interior design application may have access to a database of thousands of furniture items from multiple vendors.

[0017] Each application instance is capable of generating an AN encoded output stream via an AN input/output 19, for instance in the form of an MPEG2, MPEG4, H.263 or other A/V over IP encoding. Such stream may be generated directly by the application, or indirectly through media IP encoders connected to other A/V interfaces, e.g. red green blue (RGB) to MPEG4 encoder.

[0018] The application servers 9 are further arranged for receiving control data from the customer terminals 1. For this purpose each application instance has an input for control data 23.

[0019] In an embodiment, the network also comprises VoIP server 27 for serving voice connections over IP and real-time streaming protocol (RTSP) server 29 for serving RTSP traffic in the network.

[0020] The network shown in Fig. 1 further comprises an application access user interface module (AAUIM) 11, a charging module 13, an access policy control and resource management module (APCRMM) 15 and a multiplexing and access control module (MACM) 7 further comprising a transcoding unit 21. The operation and purpose of these blocks will be described next in connection with the description of interaction of different network elements.

[0021] The MACM 7 connects the A/V input/output ports 19 of the application instances to the A/V decoder port 17 of the set-top-box 3 and the control data ports 23 of the application instances to the control data ports 25 of the set-top-box 3. If the A/V output stream from an application server 9 is not based on a coding standard supported by the AN decoder 17 of the recipient set-top-box 3, the transcoding unit 21 of the MACM 7 performs the required transcoding operation.

[0022] The A/V data stream is, for instance an MPEG2 or MPEG4 encoded data stream, either unicast or multicast, from the application instances. and the MACM 7 encrypts this stream, if needed and eventually remaps its destination to the appropriate destination IP address and port, e.g. the multicast address of a given IPTV channel, or a direct unicast address of the target AN decoder 17.

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[0023] The control data flow is generated directly by the customer terminal 1 or by a control unit, e.g. a remote control, of such a terminal. Examples of different control means are for instance IP enabled joystick or keyboard, an infrared remote control causing the set-top-box 3 to generate hypertext transfer protocol (HTTP) requests, or an IP stream generated by a control device driver in the customer terminal 1 central processing unit. For instance a USB or Bluetooth keyboard, with a USB/Bluetooth driver can run in the set-top-box 3, which tunnels the control device data flow into IP packets to the MACM 7.

[0024] The customer terminals 1 when initiating a communication session with the application servers 9 use a protocol designed for interactive communications as an access protocol to the application instances. For instance, session initiation protocol (SIP), as defined by IETF (RFC 3261) or by the 3rd Generation Partnership Program (3GPP) is used as an access protocol for the control data and RTP is used to convey the media streams. Also an H.323 protocol defined by ITU is used as an access protocol for the control data.

[0025] The MACM 7 or more precisely the transcoding unit 21 of the MACM 7 is arranged for performing required transcodings. For instance it transcodes the H.263 stream from the SIP or H.323 interactive multimedia application instance to an A/V encoded format, such as an MPEG2 required by the set-top-box 3. The transcoding unit 21 also transcodes the HTTP stream generated by the customer terminal's 1 remote control into SIP INFO messages, if SIP is used as the access protocol to the interactive application instances, or to H.245 User Input Indication messages, if H.323 is used as the access protocol to the interactive application instances.

[0026] The MACM 7 also implements the relevant techniques such as encryption, key distribution and router access-list control to ensure that only authorized customer terminals 1 can access each application instance. The MACM 7 encrypts the A/V data streams and injects them to the IP access network 5 to be transmitted to the target IP address and port of the destination AN decoder 17. It also distributes the decryption keys to the A/V decoders 17.

[0027] Furthermore, the MACM 7 ensures that it propagates to the application instances only control data flows from the appropriate customer terminals 1 currently using this application instance. If SIP is used as the interactive application access protocol, each application instance is identified by a SIP Dialog (From tag, To tag, Call-ID). If HTTP is used as the user's control data flow, i.e. the remote control of the customer terminal 1 causes the set-top-box 3 to generate HTTP requests, then the MACM 7 is responsible for the conversion of each HTTP request generated by the set-top-box 3 of the user, identified by its IP address or any other specific information sent in the HTTP request, into a SIP INFO message as part of the existing SIP Dialog established with the interactive application instance.

[0028] The MACM 7 operates under the control of the APCRMM 15. The APCRMM 15 instructs the MACM 7 to connect customer terminals 1 to application instances, possibly for a limited duration. It may also allocate encryption keys to the MACM 7.

[0029] The AAUIM 11 provides the customer terminal 1 with a choice of application types, according to the business rules stored in the APCRMM 15. The AAUIM 11 can be, for instance a simple hypertext markup language (HTML) portal accessed by use of the customer terminal 1 through the AN decoder 17. The AAUIM 11 may also be presented as a binary information format for scenes (BIFS) portal to the AN decoder 17.

[0030] The APCRMM 15 implements the business rules related to an application access. It receives the customer terminal 1 requests to access a given application type and decides if the customer terminals 1 are allowed to access a given application type and allocates an available application instance. The APCRMM 15 further instructs the MACM 7 to connect the customer terminals 1 with the selected application instances. The APCRMM 15 also generates accounting records necessary to the charging module 13 and limits the duration of application sessions if necessary.

[0031] The charging module 13 is responsible for collecting data related to charging of the usage of the application instances. The charging module 13 collects usage records generated by the APCRMM 15 offline or online.

[0032] Next a first embodiment of the invention will be described in more detail with reference to the flow chart of Figs. 2a and 2b. In this embodiment the customer terminal 1, in this case a television 1 initiates the communication session with the application server 9, the access protocol employed is SIP and the AAUIM 11 employs HTML. It is to be noted that this is a non-limiting exemplary embodiment and variations are of course possible.

[0033] At step 201 the user switches on his/her television 1 and by doing this an embedded HTTP client opens a preconfigured universal resource locator (URL). This is an electronic program guide. In this example, the home page of the electronic program guide displays a link to *"interactive applications"*, which is a URL to the AAUIM 11.

[0034] Using the infrared remote control, the user of the television 1 selects the *"interactive applications"* link (step 202). This causes the television 1 to load the URL of the AAUIM, e.g. by using GET /serviceList.html. The AAUIM 11 is running on an HTTP server and upon receiving the GET /serviceList.html HTTP request, the HTTP server runs the application logic of the AAUIM 11 and at step 203 provides the IP address of the request sender (i.e. the television 1) to the APCRMM 15 in order to get the list of allowed applications for this user.

[0035] At step 204 the APCRMM 15 responds with the applications that the current user is allowed access. Then from this list of allowed applications provided by the APCRMM 15, the AAUIM builds (step 205) an HTML page which is sent (step 206) to the television 1 via the

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set-top-box 3 for presentation to the user of the television 1. The HTML page can, for instance comprise links to following applications: weather, finance, traffic, news and sports.

[0036] Using the remote control, the user of the television 1 then selects (step 207) one of the applications, for instance "weather". Then at step 208 the set-top-box 3 sends the corresponding HTTP Get request to the AAUIM 11 HTTP server. In this example, the MACM 7 checks availability of instances (step 209) for this application from the APCRMM 15. As in this embodiment the service itself is available through the SIP, at step 210 the APCRMM 15 provides the MACM 7 with the SIP universal resource indicator (URI) that is used to access the application.

[0037] In this embodiment, at step 211 the APCRMM 15 also checks availability of servers 9 in the interactive application farms, and also which servers 9 implement the "weather" service. At step 212, the APCRMM 15 instructs the MACM 7 to connect to a specific server 9, using SIP as the access protocol. The APCRMM 15 thus also chooses the access protocol. The AAUIM then acts as a SIP user agent.

[0038] Then the server 9 creates (step 213) an instance of the interactive application, and responds and maps the application instance to the SIP dialog.

[0039] As the MACM 7 needs to perform transcoding to MPEG2 before sending the media to the A/V decoder 17, for this purpose the MACM interacts with the transcoding unit 21. In this example, the transcoding unit 21 can receive RTP media, and make it accessible in MPEG2 format to any RTSP client. At step 214, the MACM 7 obtains reception ports for the RTP through SIP signaling.

[0040] At this stage the MACM 7 can inform the server 9 that it is ready to receive data stream from the server 9. Now the transcoding unit 21 starts to receive an A/V media stream, in the form of two RTP streams, from the server 9 and transcodes (step 215) it into MPEG2. It is to be noted that also other A/V encoding formats ban be employed.

[0041] Next the MACM 7 responds (step 216) to the GET HTTP request of the set-top-box 3 by indicating an RTSP URI. The RTSP URI could be the only content returned, or it could be one of the frames of a web page.

[0042] Then the set-top-box 3 contacts (step 217) the RTSP server using RTSP and the RTSP server responds to this (step 218).

[0043] At this stage the set-top-box 3 starts receiving (step 219) the MPEG2 A/V stream from the application server through the RTSP server 29. The data stream could be encrypted by the transcoding unit 21 to prevent hacking, by using a key passed in the SIP exchange with the MACM 7.

[0044] Now the user of the television 1 can start to interact (step 220) with the application using, for instance his/her infrared remote control. For instance in this example the "weather" interactive application starts with an animated satellite map indicating regions identified by a number. The user of the television 1 may then press the corresponding number on his remote control. Each key press (e.g. "9") is then notified to the AAUIM 11. In this example the MACM 7 converts it into a SIP INFO message, in the context of the ongoing SIP Dialog.

[0045] If the application is controlled by a phone, the application could be controlled by use of dual-tone multifrequency (DTMF) signaling. The applications could be equally controlled by use of interactive voice response (IVR) in telephony. The possibility to develop an application once, and make it available through telephone, UMTS, videophones and IPTV systems is one of the advantages of this interactive application architecture for existing IPTV systems.

[0046] In the second embodiment of the invention the interactive session is dynamically established. In this embodiment, the television 1 of the end-user is already switched on before the connection setup. The television 1 is arranged so that it is capable of dynamically presenting "pop-up" type notifications to the end-user. Now the AAUIM 11 can take advantage of this feature to launch an interactive session with the end-user. In the second embodiment of the invention an interactive video conferencing session is launched with the television 1 through the set-top-box 3.

[0047] The end-user has access to a VoIP service, where the VoIP system hosted by the service provider provides the following facilities:

- supervision of call through a computer telephony interface (CTI) or equivalent interface. For instance in public networks supervision of calls can be performed by an intelligent network (IN) application, or by an IP multimedia subsystem (IMS) application server in an IMS network. In a typical the supervision of calls may be derived from the existing colored ring back tone (RBT) service, which is triggered for any incoming call to the subscriber. Colored ring back tone service is provided by several vendors, for instance FunDial™ provided by Comverse Inc of 100 Quannapowitt Parkway Wakefield, MA 01880 (www.comverse.com). The incoming call event provides a special parameter for video calls, i.e. callers providing a video capability. In the example we assume that the CTI link makes accessible session description protocol (SDP) of the caller as a CTI variable.
- an ability to access the RTP video stream, activated by the CTI interface or an equivalent interface.
- an ability to initiate a new call on behalf of the supervised line.

[0048] In this example, described in Figs. 3a and 3b, a "videophone emulator" interactive application running on a server 9 simply activates (step 301) the CTI supervision of the phone numbers of the users of this service. For instance user A is called on his/her phone number

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0123456789, and the CTI interface of the VoIP server 27 notifies (step 302) the "videophone emulator" interactive application that phone line "0123456789" is ringing, and provides (step 303) the SDP made available on the CTI link. The "videophone emulator" application creates (step 304) a new instance to process this call, and notifies the AAUIM 11 by sending a SIP INVITE message to the AAUIM 11.

[0049] The AAUIM 11 uses the mechanisms made available by the IPTV system to notify (step 305) the end-user about an incoming video call. For instance, a pop-up will be displayed (step 306) on the top part of the television 1 screen "Video call from 9871234, Accept?". The response of the end-user will be conveyed back to the AAUIM 11 in the form of an HTTP GET request. If the answer of the end-user is positive, then the AAUIM 11 needs to invoke (step 307) the transcoding unit 21 to convert the video stream into an A/V encoded format, such as MPEG2.

[0050] The transcoding unit 21 allocates (308) reception ports and includes them in the SDP payload of the SIP signaling response to inform the MACM 7.

[0051] Next the AAUIM 11 passes (step 309) the corresponding RTSP URL to the HTTP browser of the set-top-box 3, in response to the HTTP Get command.

[0052] The set-top-box 3 then contacts (step 310) the RTSP server 29 (using RTSP protocol) to which the RTSP server 29 responds (step 311).

[0053] The set-top-box 3 is now ready to receive the MPEG2 data stream. The AAUIM 11 responds (step 312) to the videophone emulator application, including the reception ports provided by the transcoding unit 21.

[0054] The videophone emulator application uses the CTI to request the VoIP server 27 to start sending (step 313) the video stream to the provided reception ports. When the end-user takes the call on the phone connected to the VoIP gateway, he will receive (step 314) the corresponding video stream on his television set 1, thereby emulating a receive only videophone.

[0055] The flow of a video call passed to a TV (1) and phone line using an RBT server, such as Comverse FunDial™, would comprise the following steps:

- The call to the subscriber's number gets routed to the RBT server (because this subscriber has an IN service mark in the switch, either statically configured or retrieved through an home location register query in a mobile network) by the central office service of this customer (a mobile switching center in the case of a mobile network).
- The RBT server realizes that the call is a video call (unrestricted 64K bearer type) in the form of a 3G-324M multiplex.
- The RBT server then does not activate the regular audio ring back tone, but instead sends back a video ring back tone, while placing an audio call to the phone line, and notifying the gateway, such as the set-top-box 3 in the example above, of an incoming video stream.
- When the phone line is picked up, the modified RBT server stops playing the video ring back tone, and separates the audio and video streams coming from the 3G phone (i.e. demultiplexes the H223 structure in the 64K bearer), performs the necessary transcodings, and sends the video to the IPTV gateway, such as the set top box 3 in the example above, the audio to the phone.
- The user experiences a video call, with video on TV and audio on the phone. The 3G phone can either see an avatar (inserted by the modified RBT server), or if the IPTV user is equipped with a web cam (WiFi web cam connected to the IPTV set top box or to the IP network, e.g. WiFi web cam), the modified RBT server can also send a video image to the 3G phone.

[0056] Above some embodiments of the invention were described by use of non-limiting examples, however, alterations and medications are possible within the scope of the appended claims.

[0057] The invention also relates to the multiplexing and access control module 7 comprising the transcoding unit 21.

[0058] The invention also relates to the system comprising at some of the described in Fig. 1.

[0059] The invention equally relates to the corresponding computer program product that is capable of implementing the method in accordance with the embodiments of the invention when loaded and run on computer means of the system.

Claims

1. A method of providing interactive services through a telecommunications network, the method comprising the steps of:

   - exchanging (213, 304 an audio/visual (A/V) stream and control data between an application server (9) and a multiplexing and access control module (7) of the telecommunications network, by means of a bidirectional interactive protocol;
   - implementing (216-218, 309-311) protocol of an Internet protocol television (IPTV) service within the telecommunications network for communicating with customer premises television equipment (1), wherein the IPTV protocols include a streaming protocol for transmission to customer premises television equipment (1) of an A/V stream received from the application server (9) and a monodirectional interactive protocol for receiving user commands at the multiplexing and access control module (7);
   - converting (220, 307, 314) the user commands into messages of the bidirectional interactive protocol for transmission to the application serv-

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er (9); and
- relaying (220, 314) response data from the application server (9) to the customer premises television equipment (1) from which the user command originates.

2. The method according to claim 1, wherein the bidirectional interactive protocol is a real-time protocol.

3. The method according to claim 2, wherein the bidirectional interactive real-time protocol comprises the Session Initiation Protocol (SIP) or the H.323 protocol.

4. The method according to any of the preceding claims, wherein the monodirectional interactive protocol comprises the hypertext transfer protocol (HTTP).

5. The method according to any of the preceding claims, wherein the application server (9) is arranged for emulating a video telephony service.

6. The method according to claim 5, wherein the telecommunications network is arranged to support colored ring back tone service and the method further comprising deriving supervision of incoming calls from the ring back tone service.

7. The method according to claim 5, wherein the telecommunications network further comprises a ring back tone server and the method comprises routing an incoming call to the ring back tone server, the ring back tone server determining that the incoming call is a video call, the ring back tone server activating a video ring back tone and notifying a gateway connected to the customer premises equipment of the incoming video call.

8. The method according to any of the preceding claims, wherein the telecommunications network further comprises an access policy control module (15) checking (211) availability of the interactive services.

9. The method according to any of the preceding claims, wherein the telecommunications network further comprises an access policy control module (15) instructing (212) the multiplexing and access control module (7) to connect to a specific application server (9).

10. The method according to any of the preceding claims further comprising the application server (9) or the customer premises television equipment (202, 302-304) initializing the exchanging an audio/visual (AN) stream and control data between the application server (9) and the multiplexing and access control module (7) of the telecommunications network.

11. A software program product for implementing the method according to any one of claims 1-10, when loaded and run on computer means of the network.

12. A multiplexing and access control module (7) for providing interactive services through a telecommunications network, the multiplexing and access control module (7) comprising:

- means for exchanging an audio/visual (A/V) stream and control data with an application server (9) of the telecommunications network, by means of a bidirectional interactive protocol;
- means for communicating with customer premises television equipment (1) by use of protocols of an Internet protocol television (IPTV) service, wherein the IPTV protocols include a streaming protocol for transmission to customer premises television equipment (1) of an A/V stream received from the application server (9) and a monodirectional interactive protocol for receiving user commands;
- means for converting the user commands into messages of the bidirectional interactive protocol for transmission to the application server (9); and
- means for relaying response data from the application server (9) to customer premises television equipment (1) from which the user command originates.

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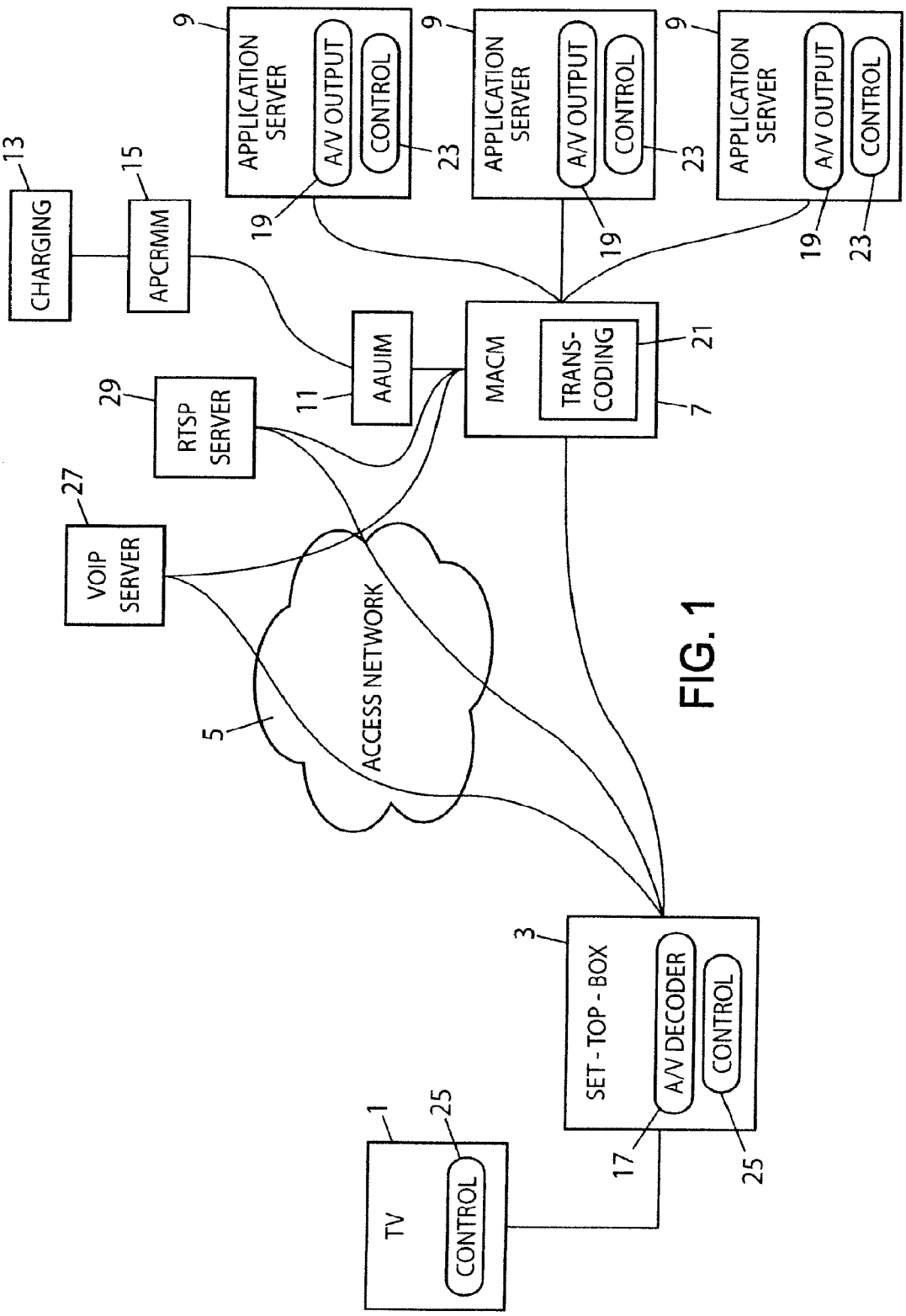


FIG. 1

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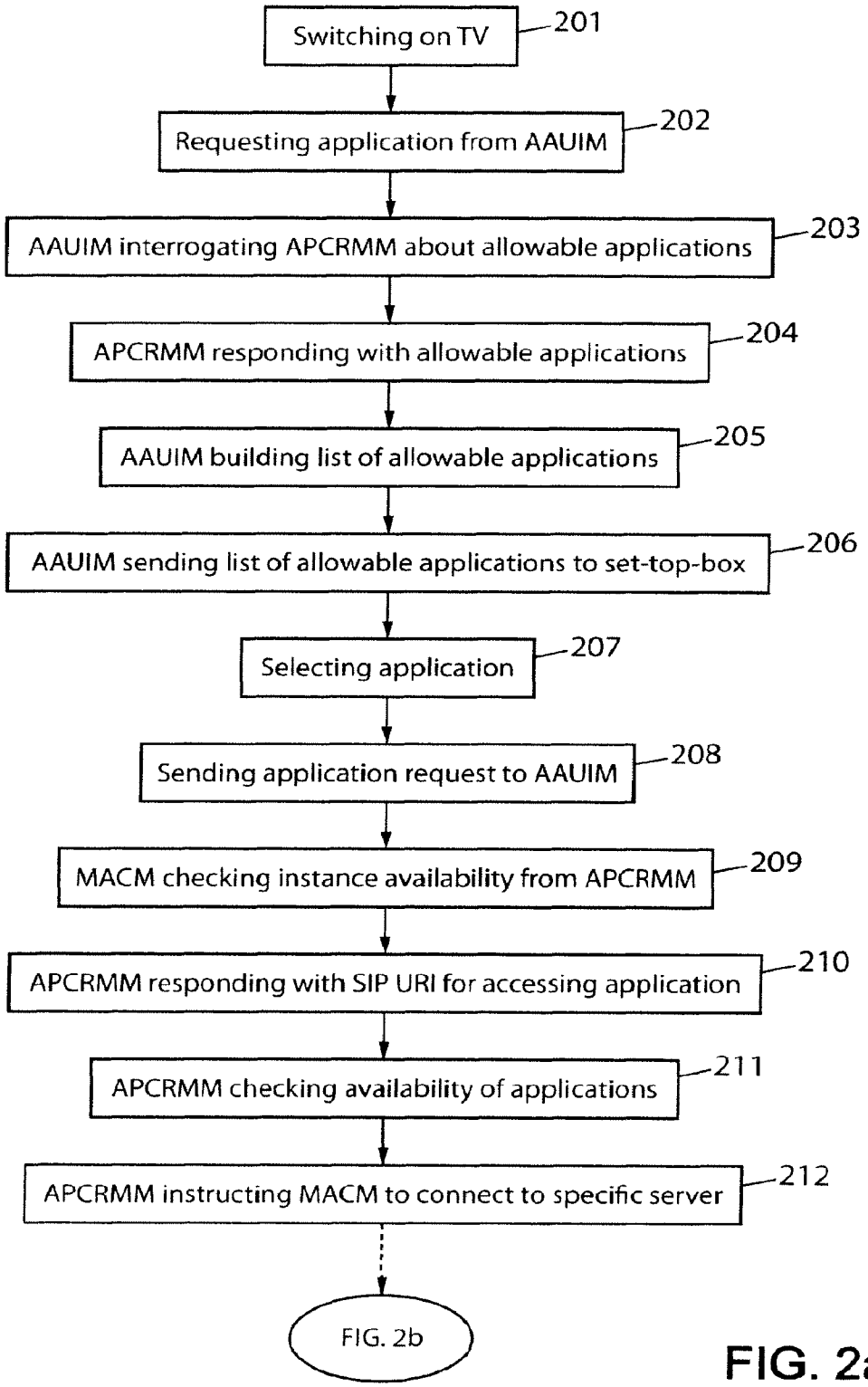


FIG. 2a

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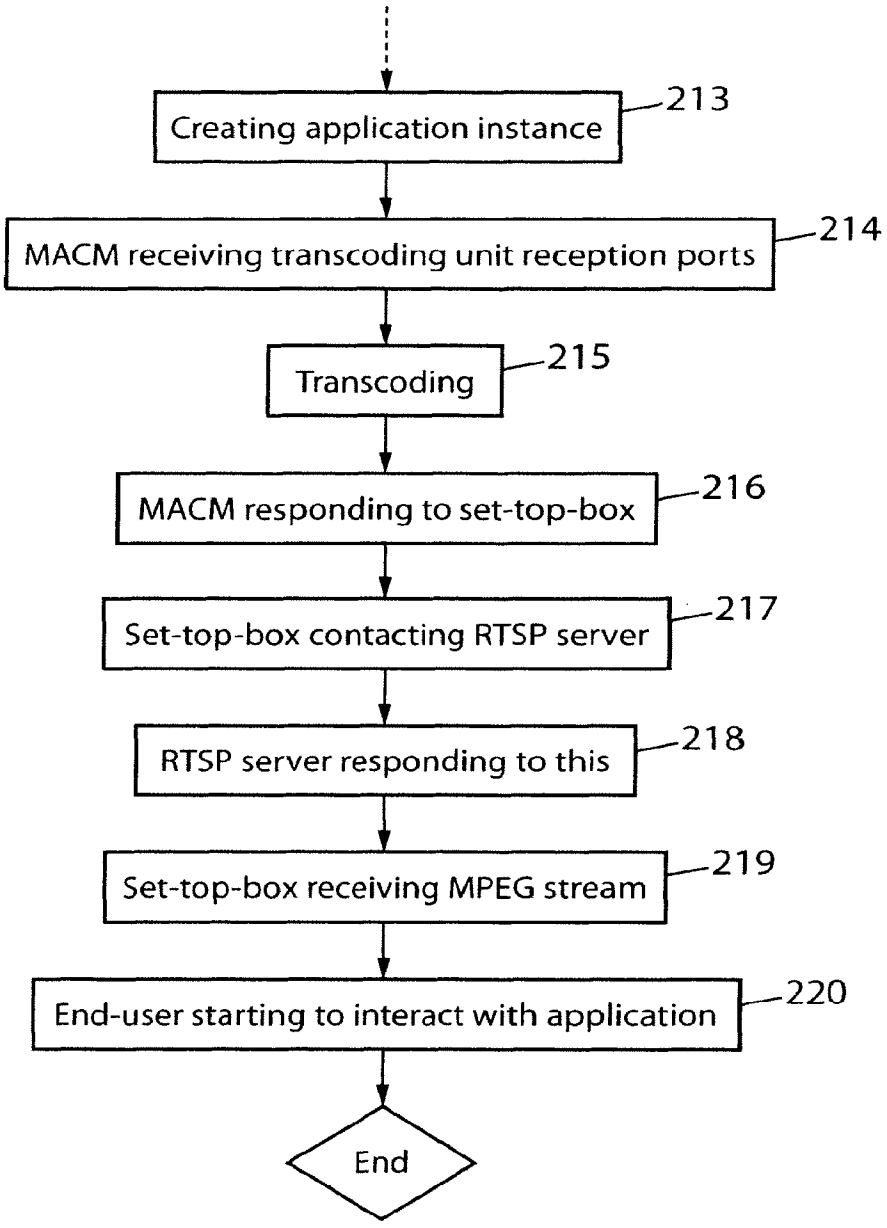


FIG. 2b

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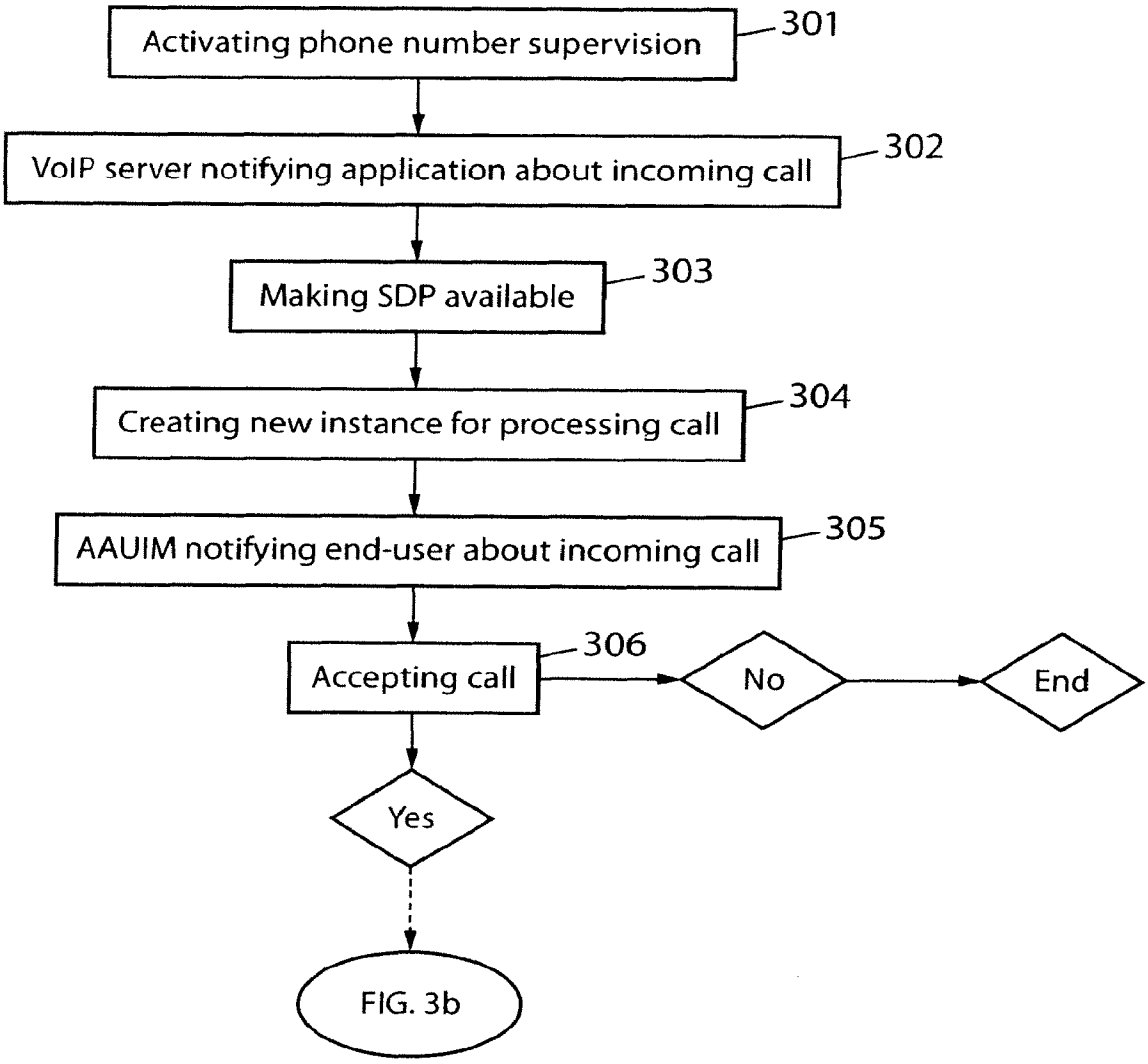


FIG. 3a

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BNSDOCID: <EP_____ 1890463A1_I_>

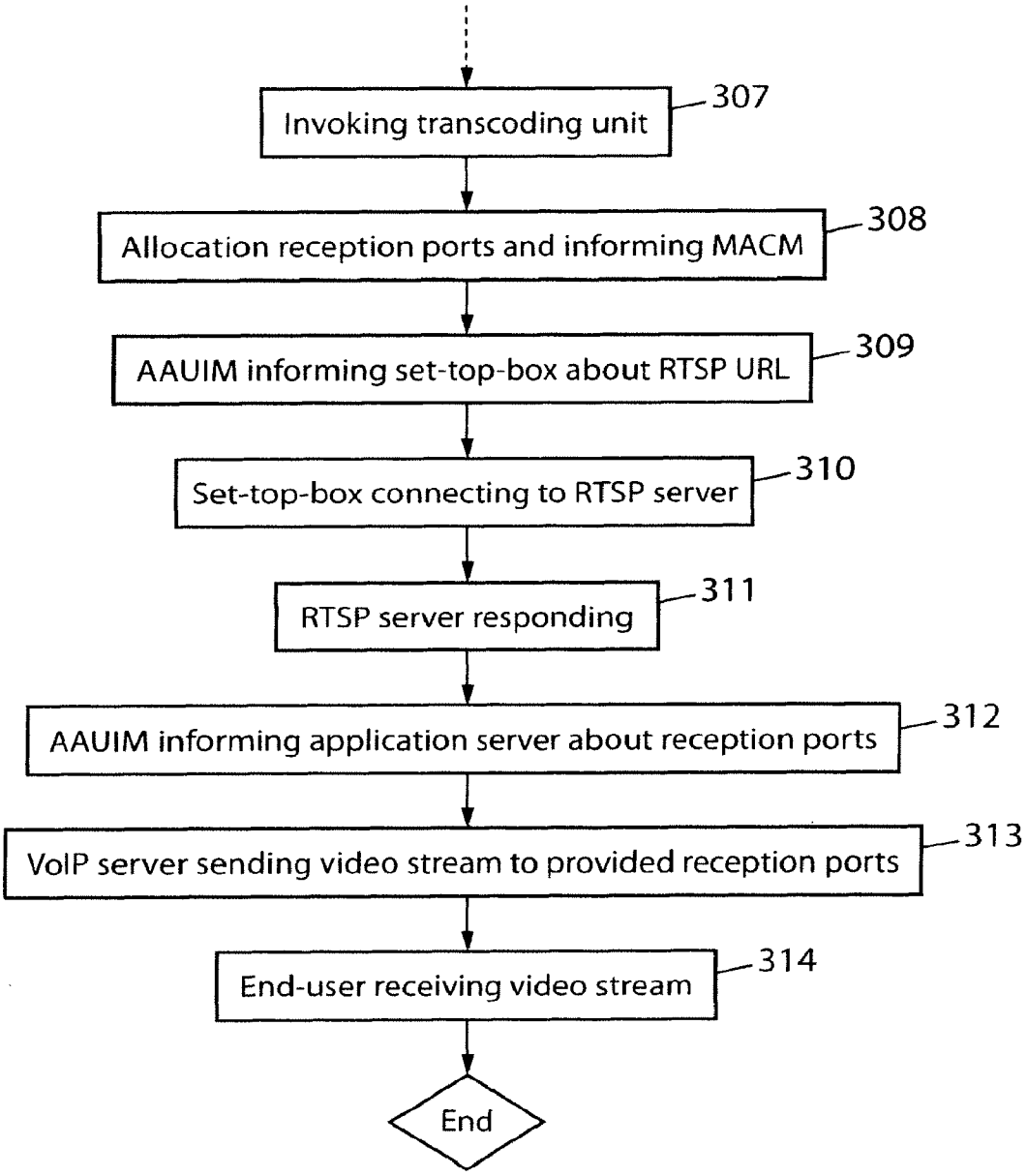


FIG. 3b

Samsung Ex. 1013, Page 697 of 788

BNSDOCID: <EP_____1890463A1_I_>

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 11 4353

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WELDON: "IMS and IPTV, Perfect Together" IPCOMMUNICATIONS.COM, [Online] 17 January 2006 (2006-01-17), pages 1-4, XP002418650 Retrieved from the Internet: URL:http://ipcommunications.tmcnet.com/hot-topics/ims/articles/280-ims-iptv-perfect-together.htm> [retrieved on 2007-02-06] * the whole document *	1-5,8-12	INV. H04L29/06
Y		6,7	
X	ALCATEL: "Delivering True Triple Play - Composite Applications and the Role of SIP" WHITE PAPER, [Online] June 2006 (2006-06), pages 1-6, XP002418651 Retrieved from the Internet: URL:http://www.alcatel-lucent.com/tripleplay> [retrieved on 2007-02-06] * the whole document *	1-5,8-12	
X	LEMKE A C ET AL: "Triple Play: Don't Play! Make it Real!" ALCATEL TELECOMMUNICATIONS REVIEW, [Online] vol. 4, December 2005 (2005-12), pages 1-7, XP002418652 Retrieved from the Internet: URL:http://www1.alcatel-lucent.com/atr/> [retrieved on 2007-02-06] * the whole document *	1-5,8-12	TECHNICAL FIELDS SEARCHED (IPC) H04L H04M

-/--

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	4 September 2007	ERASO HELGUERA, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

Samsung Ex. 1013, Page 698 of 788

BNSDOCID: <EP ___ 1890463A1_I_>

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 11 4353

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	ALCATEL: "Delivering True Triple Play - Common Capabilities for the Delivery of Composite Services" WHITE PAPER, [Online] June 2006 (2006-06), pages 1-11, XP002418653 Retrieved from the Internet: URL:http://www.alcatel-lucent.com/tripleplay> [retrieved on 2007-02-06] * the whole document *	1-5,8-12	
Y	US 2004/120494 A1 (JIANG SHAONING [US] ET AL) 24 June 2004 (2004-06-24) * paragraph [0028] - paragraph [0036]; figure 2 *	6,7	
A	STEVEN WHITEHEAD VERIZON MARIE-JOSE MONTPETIT MOTOROLA CONNECTED HOME SOLUTIONS XAVIER MARJOU FRANCE TELECOM: "An Evaluation of Session Initiation Protocol (SIP) for use in Streaming Media Applications 00.txt" IETF STANDARD-WORKING-DRAFT, INTERNET ENGINEERING TASK FORCE, IETF, CH, February 2006 (2006-02), XP015044709 ISSN: 0000-0004 * the whole document *	1,11,12	

TECHNICAL FIELDS SEARCHED (IPC)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	4 September 2007	ERASO HELGUERA, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

Samsung Ex. 1013, Page 699 of 788

BNSDOCID: <EP 1890463A1 >

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 07 11 4353

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-09-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004120494 A1	24-06-2004	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

Samsung Ex. 1013, Page 700 of 788

BNSDOCID: <EP__ ____1890463A1_I_>

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 0123456789 A **[0048]**

Samsung Ex. 1013, Page 701 of 788

BNSDOCID: <EP_____ _1890463A1_I_>

Sip - RTSP Gateway

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
KONINKLIJKE KPN N.V.
Attn. Wuyts, K.M.
P.O. Box 95321
NL-2509 CH The Hague
PAYS-BAS

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 403309WO	Date of mailing *(day/month/year)* 16/04/2009
International application No. PCT/EP2008/011014	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
Applicant KONINKLIJKE KPN N.V.	International filing date *(day/month/year)* 22/12/2008

1. [x] The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

   Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Fascimile No.: (41-22) 338.82.70

   For more detailed instructions, see the notes on the accompanying sheet.

2. [ ] The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. [ ] **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

   [ ] the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

   [ ] no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90*bis*.1 and 90*bis*.3, respectively, before the completion of the technical preparations for international publication.

   The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

   In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

   See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Anita Rothenbücher

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report and the written opinion of the International Searching Authority, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims,description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only (see *PCT Applicant's Guide*, Volume I/A, Annexes B1 and B2).

The attention of the applicant is drawn to the fact that amendments to the claims under Article 19 are not allowed where the International Searching Authority has declared, under Article 17(2), that no international search report would be established (see *PCT Applicant's Guide*, Volume I/A, paragraph 296).

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped),whether

(i) the claim is unchanged;

(ii) the claim is cancelled;

(iii) the claim is new;

(iv) the claim replaces one or more claims as filed;

(v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."

2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."

3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."

4. [Where various kinds of amendments are made]:
"Claims 1–10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments and any accompanying statement, under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the time of filing the amendments (and any statement) with the International Bureau, also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and, where required, a translation of such amendments for the procedure before that Authority (see Rules 55.3(a) and 62.2, first sentence). For further information, see the Notes to the demand form (PCT/IPEA/401).

If a demand for international preliminary examination is made, the written opinion of the International Searching Authority will, except in certain cases where the International Preliminary Examining Authority did not act as International Searching Authority and where it has notified the International Bureau under Rule 66.1*bis*(b), be considered to be a written opinion of the International Preliminary Examining Authority. If a demand is made, the applicant may submit to the International Preliminary Examining Authority a reply to the written opinion 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 (Rule 43*bis*.1(c)).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see the *PCT Applicant's Guide*, Volume II.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 403309WO	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/EP2008/011014	International filing date *(day/month/year)* 22/12/2008	(Earliest) Priority Date *(day/month/year)* 21/12/2007
Applicant KONINKLIJKE KPN N.V.		

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

This international search report consists of a total of 4 sheets.

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

1. **Basis of the report**
   a. With regard to the **language,** the international search was carried out on the basis of:
      [X] the international application in the language in which it was filed
      [ ] a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. [ ] This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).
   c. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. [ ] **Certain claims were found unsearchable** (See Box No. II)

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

4. With regard to the **title,**
   [X] the text is approved as submitted by the applicant
   [ ] the text has been established by this Authority to read as follows:

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

6. With regard to the **drawings,**
   a. the figure of the **drawings** to be published with the abstract is Figure No. 7
      [ ] as suggested by the applicant
      [ ] as selected by this Authority, because the applicant failed to suggest a figure
      [X] as selected by this Authority, because this figure better characterizes the invention
   b. [ ] none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2008/011014

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04L29/06

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)
H04L

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 practical, search terms used)
EPO-Internal, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FRESA A ET AL: "A Testbed for Experimentation of Innovative Services in the B3G Framework" TESTBEDS AND RESEARCH INFRASTRUCTURES FOR THE DEVELOPMENT OF NETWORKS AND COMMUNITIES, 2005. TRIDENTCOM 2004. FIRST INTERNATIONAL CONFERENCE ON TRENTO, ITALY 23-25 FEB. 2005, PISCATAWAY, NJ, USA,IEEE, 23 February 2005 (2005-02-23), pages 110-119, XP010774176 ISBN: 978-0-7695-2219-7 the whole document ----- -/--	1-16

[X] Further documents are listed in the continuation of Box C.

[X] 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 document but published on or after the international filing date

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

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
8 April 2009	16/04/2009

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Kesting, Volker

2

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

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WHITEHEAD VERIZON LABORATORIES INC M J MONTPETIT MOTOROLA CONNECTED HOME SOLUTIONS X MARJOU FRANCE TELECOM S: "An Evaluation of Session Initiation Protocol (SIP) for use in Streaming Media Applications; draft-whitehead-mmusic-sip-for-streamin g-media-02.txt" IETF STANDARD-WORKING-DRAFT, INTERNET ENGINEERING TASK FORCE, IETF, CH, no. 2, 22 October 2006 (2006-10-22), XP015048637 ISSN: 0000-0004 the whole document	1-16
X,P	EP 1 890 463 A1 (COMVERSE LTD [IL]) 20 February 2008 (2008-02-20) abstract paragraph [0013] - paragraph [0054]	1-16
A	FRIEDRICH O ET AL: "Next Generation IPTV services for an extended IMS architecture" AUTONOMOUS DECENTRALIZED SYSTEMS, 2007. ISADS '07. EIGHTH INTERNA TIONAL SYMPOSIUM ON, IEEE, PI, 1 March 2007 (2007-03-01), pages 429-436, XP031070348 ISBN: 978-0-7695-2804-5 the whole document	1-16

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2008/011014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1890463 A1	20-02-2008	EP 1890457 A1	20-02-2008
		US 2009055878 A1	26-02-2009

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP2008/011014	22.12.2008	21.12.2007

International Patent Classification (IPC) or both national classification and IPC
INV. H04L29/06

Applicant
KONINKLIJKE KPN N.V.

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

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

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually 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 notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

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

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

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

Name and mailing address of the ISA:

European Patent Office
P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040
Fax: +31 70 340 - 3016

Date of completion of this opinion

see form PCT/ISA/210

Authorized Officer

Kesting, Volker

Telephone No. +31 70 340-2741

Box No. I Basis of the 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 43bis.1(a))

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

   a. type of material:

      ☐ a sequence listing

      ☐ table(s) related to the sequence listing

   b. format of material:

      ☐ on paper

      ☐ in electronic form

   c. time of filing/furnishing:

      ☐ contained in the international application as filed.

      ☐ filed together with the international application in electronic form.

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

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

5. Additional comments:

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

1. Statement

Novelty (N)	Yes:	Claims	2, 8, 13
	No:	Claims	1, 3-7, 9-12, 14-16
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-16
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

see form 210

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Reference is made to the following documents:

D1: FRESA A ET AL: "A Testbed for Experimentation of Innovative Services in the B3G Framework" TESTBEDS AND RESEARCH INFRASTRUCTURES FOR THE DEVELOPMENT OF NETWORKS AND COMMUNITIES, 2005. TRIDENTCOM 2004. FIRST INTERNATIONAL CONFERENCE ON TRENTO, ITALY 23-25 FEB. 2005, PISCATAWAY, NJ, USA,IEEE, 23 February 2005, pages 110-119, ISBN: 978-0-7695-2219-7

D2: WHITEHEAD VERIZON LABORATORIES INC M J MONTPETIT MOTOROLA CONNECTED HOME SOLUTIONS X MARJOU FRANCE TELECOM S: "An Evaluation of Session Initiation Protocol (SIP) for use in Streaming Media Applications; draft-whitehead-mmusic-sip-for-streamin g-media-02.txt" IETF STANDARD-WORKING-DRAFT, INTERNET ENGINEERING TASK FORCE, IETF, CH, no. 2, 22 October 2006

2 **Claim 1** does not meet the requirement of novelty, Art. 33(2) PCT.

2.1 **D1** discloses (see the Section "Streaming Services") a method for transmitting a multimedia stream (*desired clip / selected film*) from a first terminal (*Streaming Server*) and receiving an associated second multimedia stream (*desired clip / selected film*, this corresponding to the embodiment as specified in claim 10) at a second terminal (*User Equipment UE*),

wherein the first and second terminal are connected to at least one gateway for enabling the transmission of the first multimedia stream and the receiving of the second associated stream (implicit, given that the *UE* is located in a *visited* (mobile) *network*, and the *Streaming Server* is remote from this network since it is the *Home network's central (default) Streaming Server*; moreover, in line with the embodiment defined in claim 14, the *Streaming Server* itself may be anyway considered an integrated device comprising both, terminal and gateway),

the method comprising the steps of:

initiating the exchange of first multimedia session information between the first terminal and the gateway, using a first protocol (*Streaming Server will then dynamically generate an* RTSP URL *(depending on the particular film selected) and* activation password);

providing a trigger (*200 OK SIP response*) to the second terminal to initiate the exchange of second multimedia session information between the second terminal and the gateway, using a second protocol (*SIP*);

in response to the providing of the trigger, the second terminal initiating the exchange of second multimedia session information between the second

terminal and the gateway (*activation phase*), using a third protocol (*RTSP*), the third protocol being different from the second protocol;

transmitting a first multimedia stream from the first terminal and receiving a second associated multimedia stream at the second terminal (see above).

2.2 Note that in an alternative interpretation the gateway of claim 1 may be read onto the *S-CSCF* of D1, which actually forwards the *SIP SUBSCRIBE request* that implicitly includes a user identification, towards the Streaming Server, thereby enabling the transmission/receiving.

2.3 It should be noted that document **D2** if not also anticipating the subject-matter of claim 1, at least renders it obvious.

3 **Claims 11 and 16** both correspond to method claim 1, in terms of a system and a computer program product, respectively, and do also not meet the requirement of novelty for the above reasons. **Claims 12 and 15** are respectively directed to a gateway and a device which essentially are part of what is claimed in claim 11. They do therefore not meet the requirement of novelty either.

4 The additional features of the **dependent claims** are either also known from D1 (claims 3 - 7, 9, 10, 14) or are obvious implementation details (claims 2, 8, 13).

Re Item VI

Certain documents cited

Certain published documents

Publication No	Publication date	Filing date	Priority date
EP 1 890 463 A1	20 February 2008	14 August 2007	17 August 2006

Possible steps after receipt of the international search report (ISR) and written opinion of the International Searching Authority (WO-ISA)

General information	For all international applications filed on or after 01/01/2004 the competent ISA will establish an ISR. It is accompanied by the WO-ISA. Unlike the former written opinion of the IPEA (Rule 66.2 PCT), the WO-ISA is not meant to be responded to, but to be taken into consideration for further procedural steps. This document explains about the possibilities.
Amending claims under Art. 19 PCT	Within 2 months after the date of mailing of the ISR and the WO-ISA the applicant may file amended claims under Art. 19 PCT directly with the International Bureau of WIPO. The PCT reform of 2004 did not change this procedure. For further information please see Rule 46 PCT as well as form PCT/ISA/220 and the corresponding Notes to form PCT/ISA/220.
Filing a demand for international preliminary examination	In principle, the WO-ISA will be considered as the written opinion of the IPEA. This should, in many cases, make it unnecessary to file a demand for international preliminary examination. If the applicant nevertheless wishes to file a demand this must be done before expiry of 3 months after the date of mailing of the ISR/ WO-ISA or 22 months after priority date, whichever expires later (Rule 54bis PCT). Amendments under Art. 34 PCT can be filed with the IPEA as before, normally at the same time as filing the demand (Rule 66.1 (b) PCT). If a demand for international preliminary examination is filed and no comments/amendments have been received the WO-ISA will be transformed by the IPEA into an IPRP (International Preliminary Report on Patentability) which would merely reflect the content of the WO-ISA. The demand can still be withdrawn (Art. 37 PCT).
Filing informal comments	After receipt of the ISR/WO-ISA the applicant may file informal comments on the WO-ISA directly with the International Bureau of WIPO. These will be communicated to the designated Offices together with the IPRP (International Preliminary Report on Patentability) at 30 months from the priority date. Please also refer to the next box.
End of the international phase	At the end of the international phase the International Bureau of WIPO will transform the WO-ISA or, if a demand was filed, the written opinion of the IPEA into the IPRP, which will then be transmitted together with possible informal comments to the designated Offices. The IPRP replaces the former IPER (international preliminary examination report).
Relevant PCT Rules and more information	Rule 43 PCT, Rule 43bis PCT, Rule 44 PCT, Rule 44bis PCT, PCT Newsletter 12/2003, OJ 11/2003, OJ 12/2003

BNSDOCID: <XS_ _ _ _ 200704010CK_I >

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XS CPRTENFRDE

BNSDOCID: <XS____2006100103CF_I_>

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Filer:	David A. Grabelsky/Lucy Hubbird
Attorney Docket Number:	

Filed as Large Entity

Filing Fees for Reissue (Utility)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY REISSUE BASIC	1014	1	300	300
REISSUE OR REISSUE DESIGN CPA SEARCH FEE	1114	1	660	660
REISSUE OR REISSUE DESIGN CPA EXAM. FEE	1314	1	2200	2200
Pages:				
Claims:				
REISSUE CLAIMS IN EXCESS OF 20	1205	7	100	700
INDEPENDENT CLAIMS REISSUE	1204	1	460	460
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**4320**

Electronic Acknowledgement Receipt

EFS ID:	36021426
Application Number:	16413052
International Application Number:	
Confirmation Number:	9330
Title of Invention:	Method and System for Transmitting a Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Customer Number:	20306
Filer:	David A. Grabelsky
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	15-MAY-2019
Filing Date:	
Time Stamp:	15:49:52
Application Type:	Reissue (Utility)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$4320
RAM confirmation Number	051619INTEFSW15510600
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	Transmittal Reissue Application	10-406-CON-REI_Reissue_Transmittal_AIA50.pdf	311704 4dee7b6b2a3f306b746b7f607d19ce79a0385b5d	no	2
Warnings:					
Information:					
2	Specification	10-406-CON-REI_Original_US_Patent_No_9654330.pdf	1287329 b8cd73109f000b9451591e2f7ecb4337cec361f5	no	21
Warnings:					
Information:					
3	Application Data Sheet	10-406-CON-REI_Application_Data_Sheet.pdf	1256878 2321e1a963b2574dddf0b6be4b4d7d074746f113	no	10
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Information:					
4	Reissue dec filed in accordance with MPEP 1414	10-406-CON-REI_Declaration.pdf	2258263 07c738278cb29e6729563b7badc131110097178e	no	8
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Information:					
5	Consent of Assignee accompanying the declaration	10-406-CON-REI_Consent.pdf	58535 d6ae2a0c68f8c982dc471b20299414daf1b2e6c1	no	1
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6	Assignee showing of ownership per 37 CFR 3.73	10-406-CON-REI_3_73_c_KPN.pdf	91831 5c6c4914564c3c01544af1c5bb5973f1bb89f681	no	2
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Information:					
7	Power of Attorney	10-406-CON-REI_Power_of_Attorney_KPN.pdf	182332 44426f5e4e961e5e4841e11798c25e7e65940ce1	no	1
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8	Terminal Disclaimer Filed	10-406-CON-REI_eTerminal-Disclaimer_in_Original_US_Patent_No_9654330.pdf	114451 291200ddbfeea45cd3b80bc545d1cc0a13348254	no	5
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9	Preliminary Amendment	10-406-CON-REI_Preliminary_Amendment_and_statement_pursuant_to_37_CFR_1_173_c.pdf	128544 373663b87a11a351a848ba97da1f4116a5469609	no	12
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10	Information Disclosure Statement (IDS) Form (SB08)	10-406-CON-REI_Information_Disclosure_Statement.pdf	1038614 9cb9eca7c6564a3e680b743d40a88e2cf6e14bfa	no	12
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11	Foreign Reference	FR_1.pdf	3036086 a1e8c8cf7490668fce6bd52863e45710c0052a60	no	40
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12	Foreign Reference	FR_2.pdf	2522452 606b50d7d594c338d8494a6e0b565e19b68a7833	no	65
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13	Foreign Reference	FR_3.pdf	1169525 e673d66e2a2bb86bfadb56642d8a5da5d2b346ae	no	26
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46	Non Patent Literature	NPL_32.pdf	299868 48d99ab175010f27ad54ebcd5a2700e5fa7d3f00	no	4
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			Total Files Size (in bytes):	84381922	

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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

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PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
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I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 20306

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

■ The address associated with Customer Number: 20306

OR

☐	Firm or Individual Name			
	Address			
	City		State	Zip
	Country			
	Telephone		Email	

Assignee Name and Address: Koninklijke KPN N.V.
Maanplein 55
2516 CK, The Hague, Netherlands

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	23 November 2012
Name	K.M. Weyts	Telephone	+31 70 3433955
Title	Chief Intellectual Property Officer		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Electronic Acknowledgement Receipt

EFS ID:	26976766
Application Number:	14015765
International Application Number:	
Confirmation Number:	6519
Title of Invention:	Method And System For Transmitting A Multimedia Stream
First Named Inventor/Applicant Name:	Hans Maarten Stokking
Customer Number:	20306
Filer:	David A. Grabelsky
Filer Authorized By:	
Attorney Docket Number:	10-406-CON
Receipt Date:	20-SEP-2016
Filing Date:	30-AUG-2013
Time Stamp:	13:19:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Electronic Terminal Disclaimer-Filed	eTerminal-Disclaimer.pdf	32021 72821631e9e94f569219e087a10ce6b8533d27c8	no	2

Warnings:

Information:	
Total Files Size (in bytes):	32021

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New Applications Under 35 U.S.C. 111

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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.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	14015765
Filing Date	30-Aug-2013
First Named Inventor	Hans Stokking
Attorney Docket Number	10-406-CON
Title of Invention	Method And System For Transmitting A Multimedia Stream

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Koninklijke KPN N.V.	100%

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

8549151

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
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- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

◯ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

◉ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number 59208 ◯ A sole inventor ◯ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ◯ A joint inventor; all of whom are signing this request	
Signature	/David A. Grabelsky/
Name	David A. Grabelsky

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 14015765

Filing Date: 30-Aug-2013

Applicant/Patent under Reexamination: Stokking et al.

Electronic Terminal Disclaimer filed on September 20, 2016

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Docket No. 10-406-CON-REI)

In re the Application Reissue of:	)	
	)	
Hans Maarten Stokking et al.	)	
	)	
U.S. Patent No.: 9,654,330	)	**Examiner: TBA**
	)	
Issue: May 16, 2017	)	**Art Unit: TBA**
	)	
For: METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM	)	**Confirmation No.: TBA**

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AMENDMENT PURSUANT TO 37 C.F.R. § 1.173(b) AND STATEMENT PURSUANT TO 37 C.F.R. § 1.173(c)

This Amendment is being filed concurrently with the Reissue Application. Please consider the following amendments and remarks.

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

Remarks begin on page 10 of this paper.

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Amendments to the Claims

1. (Original) A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream.

2. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway providing to the first terminal at least part of the second multimedia session information.

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3. (Original) The method according to claim 1, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. (Original) The method according to claim 1, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. (Original) The method according to claim 4, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. (Original) The method according to claim 5, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

7. (Original) The method of claim 1, wherein the third protocol is different from the second protocol.

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8. (Original) The method of claim 1, wherein the first multimedia stream is the second multimedia stream.

9. (Original) The method of claim 1, wherein the first protocol is a peer-to-peer protocol.

10. (Original) The method of claim 1, wherein the third protocol is a client-server protocol, and wherein the second receiving terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

11. (Original) The method of claim 1, wherein the trigger comprises a network address of the gateway.

12. (Original) The method of claim 11, wherein the network address is a URI or a URI reference.

13. (Original) The method of claim 1, wherein the first protocol and the second protocol are identical.

14. (Original) The method of claim 13, wherein the first protocol and the second protocol are the Session Initiation Protocol (SIP).

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15. (Original) The method of claim 1, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

16. (Original) An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal.

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17. (Original) A gateway comprising:

a communication interface; and

memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, wherein the third protocol is different from the first protocol, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates.

18. (Original) The gateway of claim 17, wherein the gateway is configured to connect to a first terminal supporting a first protocol and to a second terminal supporting a second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

wherein the first terminal is an originating SIP client of a user at a user side,

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wherein the gateway acts as a terminating SIP client,

wherein the gateway is configured to confirm that the gateway is able to receive a multimedia session from the user and to provide the first terminal with multimedia session information,

wherein the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user,

wherein the second terminal uses RTSP for session control, and

wherein the gateway is configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. (Original) The gateway of claim 17, wherein the gateway is configured to transmit a notification message to the second terminal in response to an invitation of the first terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. (Original) The gateway of claim 17, wherein the gateway is embedded in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), wherein the third protocol is Real Time Streaming Protocol (RTSP), the IMS network architecture comprising a service-control-function component and a media-function component, wherein the memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by the service-control-function component within the IMS network architecture;

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triggering the second terminal is controlled by the service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by the media-function component within the IMS network architecture.

21. (Original) The gateway of claim 17, wherein the gateway is configured to associate the first multimedia session information and the second multimedia session information with each other.

22. (Original) The gateway of claim 17, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

23. (New) A terminal configured to communicate with a gateway, the terminal further configured to:

- use a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media; and

- transmit an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify the second terminal, in order to be able to send a trigger to the second terminal, notifying the second terminal of the availability of the first stream.

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24. (New) The terminal of claim 23, wherein the identifier is a closed user group ID and the second terminal is part of a closed user group identified by this closed user group ID.

25. (New) The terminal of claim 24, wherein the closed user group identified by the closed user group ID contains a plurality of community subscribers and the closed user group ID is configured for being resolved by the gateway into a plurality of subscriber terminal addresses, enabling the gateway to transmit a plurality of triggers to the plurality of community subscribers notifying them of the availability of the first stream.

26. (New) The terminal of claim 23, wherein the terminal is configured to transmit a list of subscriber terminal addresses, and the identifier is a subscriber terminal address.

27. (New) The terminal of claim 23, wherein the terminal is one of a personal computer, a PDA, or a mobile phone with multimedia capabilities.

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Remarks

Status of the Claims Pursuant to 37 C.F.R. § 1.173(c)

1. All claim amendments are supported by the specification and figures.

Currently pending are claims 1-27, of which claims 1, 16, 17, and 23 are independent, claims 1-22 were originally issued, and claims 23-27 are new. None of originally-issued claims 1-22 are amended; all are fully supported in the original application and the issued patent.

Applicant submits new claims 23-27 are fully supported by the specification and figures.

New claim 23 is directed to a "terminal configured to communicate with a gateway." The terminal is further configured to "use a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media" and to "transmit an identifier to the gateway, wherein the identifier is configured for being used by the gateway to identify the second terminal, in order to be able to send a trigger to the second terminal, notifying the second terminal of the availability of the first stream."

Support for new claim 23 may be found in the issued patent at least at column 6, lines 37-38, which discloses, *inter alia*, an embodiment of the terminal, referred to as "first terminal." Support may also be found at least at column 4, lines 43-58, which discloses, *inter alia*, "exchange of first multimedia session information" between the "first terminal" and the "gateway" where the exchange includes "provisioning of an identifier of the second terminal to the gateway." Further support may be found at least at column 11, lines 54-57, which discloses, *inter alia*, "resolving an identifier received from the first terminal, used to identify the second terminal, into a network address of the second terminal." Additional support may be found at

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least at column 12, lines 23-40, which discloses, *inter alia*, a "trigger" sent to the "second terminal." Still further support may be found at least at column 14, lines 12-25, which discloses, *inter alia*, the "trigger" and the "identifier."

New claim 24 depends from new claim 23, and recites "wherein the identifier is a closed user group ID and the second terminal is part of a closed user group identified by this closed user group ID." Support for new claim 24 may be found in the issued patent at least at column 4, lines 56-58, which discloses, *inter alia*, "[t]he identifier may be a closed user group ID." Support for new claim 24 may also be found at least at column 14, lines 13-25, which discloses, *inter alia*, a "closed user group."

New claim 25 depends from new claim 24, and recites "wherein the closed user group identified by the closed user group ID contains a plurality of community subscribers and the closed user group ID is configured for being resolved by the gateway into a plurality of subscriber terminal addresses, enabling the gateway to transmit a plurality of triggers to the plurality of community subscribers notifying them of the availability of the first stream." Support for new claim 24 may also be found in the issued patent at least at column 4, lines 56-58, and at column 14, lines 13-25.

New claim 26 depends from new claim 23, and recites "wherein the terminal is configured to transmit a list of subscriber terminal addresses, and the identifier is a subscriber terminal address." Support for new claim 26 may be found in the issued patent at least at column 14, lines 13-18, which discloses, *inter alia*, "[T]he SIP INVITE request may comprise a list of subscriber terminal addresses."

New claim 27 depends from new claim 23, and recites "wherein the terminal is one of a personal computer, a PDA, or a mobile phone with multimedia capabilities." Support for new

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claim 27 may be found in the issued patent at least at column 10, lines 35-39, which discloses, *inter alia*, "the first terminal 1, the display device and the web-cam may be for instance integrated in one device such as a personal computer, a digital assistant (PDA), a mobile telephone with multi-media capabilities."

No new matter has been added by way of any of the new claims.

2. The claims in this application, as filed, broaden the overall scope of the originally-allowed set of claims.

This is a broadening reissue application. Applicant did not claim all subject matter to which Applicant was entitled.

The submitted claims are broader than the original allowed claims because they include new claims directed to a type of device not claimed in the issued claims. Specifically, new claims 23-27 are directed to a terminal, which was not previously claimed. As such, the new claims contains within their scope additional patentable subject matter that was not within the scope of the claims of the issued patent. The claims of the present application are therefore broader than the claims of the issued patent.

If there are any questions or comments regarding the above amendments, the Office is encouraged to contact the undersigned at (312) 913-3353.

Respectfully submitted,

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Date: May 15, 2019

By: /David A. Grabelsky/
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REISSUE PATENT APPLICATION TRANSMITTAL

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Attorney Docket No.	10-406-CON-REI
First Named Inventor	Hans Maarten Stokking
Original Patent Number	9,654,330
Original Patent Issue Date (Month/Day/Year)	05/16/2017
Express Mail Label No.	

APPLICATION FOR REISSUE OF: (*Check applicable box*) ☑ Utility Patent ☐ Design Patent ☐ Plant Patent

APPLICATION ELEMENTS (37 CFR 1.173)

1. ☐ **Fee Transmittal Form** (PTO/SB/56)
2. ☐ **Applicant asserts small entity status.** See 37 CFR 1.27
3. ☐ **Applicant certifies micro entity status.** See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
4. ☑ **Specification and Claims** in double column copy of patent format (*amended, if appropriate*)
5. ☑ **Drawing(s)** (*proposed amendments, if appropriate*)
6. ☑ **Reissue Oath/Declaration or Substitute Statement** (37 CFR 1.175) (PTO/AIA/05, 06, or 07)
7. ☑ **Application Data Sheet** **NOTE:** Benefit claims under 37 CFR 1.78 and foreign priority claims under 37 CFR 1.55 MUST be set forth in an Application Data Sheet (ADS).
8. ☑ **Original U.S. Patent currently assigned?** ☑ Yes ☐ No (*If Yes, check applicable box(es)*)
   - ☑ Written Consent of all Assignees (PTO/AIA/53)
   - ☑ 37 CFR 3.73(c) Statement (PTO/AIA/96)
9. ☐ **CD-ROM or CD-R** in duplicate, Computer Program (*Appendix*) or large table
   - ☐ Landscape Table on CD
10. **Nucleotide and/or Amino Acid Sequence Submission** (*if applicable, items a. – c. are required*)
    - a. ☐ Computer Readable Form (CRF)
    - b. ☐ Specification Sequence Listing on:
      - i. ☐ CD-ROM (2 copies) or CD-R (2 copies); **or**
      - ii. ☐ Paper
    - c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

11. ☑ **Statement of status and support for all changes to the claims.** See 37 CFR 1.173(c).
12. ☑ **Power of Attorney**
13. ☑ **Information Disclosure Statement (IDS)** PTOSB/08 or PTO-1449
    - ☑ Copies of citations attached
14. ☐ **English translation of Reissue Oath/Declaration** (*if applicable*)
15. ☐ **Return Receipt Postcard** (MPEP § 503) (Should be specifically itemized)
16. ☑ **Preliminary Amendment** (37 CFR 1.173; MPEP § 1453)
17. ☑ **Other:** Terminal Disclaimer

☐ This is a continuation reissue or divisional reissue application (*i.e.*, a second or subsequent reissue application for the same issued patent). (*Check box if applicable.*)

18. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 20306 **OR** ☐ Correspondence address below

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Address					
City		State		Zip Code	
Country		Telephone			
Email					

Signature	/David A. Grabelsky/	Date	May 15, 2019
Name (Print/Type)	David A. Grabelsky	Registration No.	59,208

This collection of information is required by 37 CFR 1.173. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Reissue, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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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.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

Prefix	Given Name	Middle Name	Family Name	Suffix
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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	20306		
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

Application Information:

Title of the Invention	Method and System for Transmitting a Multimedia Stream		
Attorney Docket Number	10-406-CON-REI	**Small Entity Status Claimed** ☐	
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	9	**Suggested Figure for Publication (if any)**	

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	20306		

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

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	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	reissued of	14015765	2013-08-30	9654330	2017-05-16

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14015765	Continuation of	12808665	2010-06-16	8549151	2013-10-01

Prior Application Status	Expired	Remove

Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12808665	a 371 of international	PCT/EP2008/011014	2008-12-22

Prior Application Status	Expired	Remove

Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
PCT/EP2008/011014	Claims benefit of provisional	61008644	2007-12-21

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

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)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
08002517.4	EP	2008-02-12	

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

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	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

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.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

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. ☒

Organization Name	Koninklijke KPN N.V.		
Mailing Address Information For Applicant:			
Address 1	Wilhelminakade 123		
Address 2			
City	Rotterdam	**State/Province**	
Country	NL	Postal Code	3072 AP
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.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

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**	
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. Add

Signature:

Remove

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	/David A. Grabelsky/			Date (YYYY-MM-DD)	2019-05-15
First Name	David	Last Name	Grabelsky	Registration Number	59208

Additional Signature may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10-406-CON-REI
	Application Number	
Title of Invention	Method and System for Transmitting a Multimedia Stream	

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 CooperationTreaty.

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.

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REISSUE APPLICATION: CONSENT OF ASSIGNEE; STATEMENT OF NON-ASSIGNMENT

Docket Number (Optional)
10-406-CON-REI

This is part of the application for a reissue patent based on the original patent identified below.

Name of Patentee(s)
Koninklijke KPN N.V.

Patent Number	Date Patent Issued
9,654,330	May 16, 2017

Title of Invention
METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM

1. [X] Filed herein is a statement under 37 CFR 3.73(c). (Form PTO/AIA/96)

2. [ ] Ownership of the patent is in the inventor(s), and no assignment of the patent is in effect.

One of boxes 1 or 2 above must be checked. If multiple assignees, complete this form for each assignee. If box 2 is checked, skip the next entry and go directly to "Name of Assignee."

The written consent of all assignees and inventors owning an undivided interest in the original patent is included in this application for reissue.

The assignee(s) owning an undivided interest in said original patent is/are Koninklijke KPN N.V., and the assignee(s) consents to the accompanying application for reissue.

Name of assignee/inventor (if not assigned)
Koninklijke KPN N.V.

Signature	Date
	3/15/2019

Typed or printed name and title of person signing for assignee (if assigned)
Jasper Spanbroek, General Counsel, KPN

This collection of information is required by 37 CFR 1.172. 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 6 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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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Koninklijke KPN N.V.

Application No./Patent No.: 9,654,330 Filed/Issue Date: May 16, 2017

Titled: Method and System for Transmitting a Multimedia Stream

Koninklijke KPN N.V., a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose one of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose one of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Hans Maarten Stokking, Fabian Arthur Wauters, Mattijs Oskar Van Deventer, Omar Aziz Niamut To: [illegible]

The document was recorded in the United States Patent and Trademark Office at
Reel 031143, Frame 0824, or for which a copy thereof is attached.

2. From: Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek TNO To: Koninklijke KPN N.V.

The document was recorded in the United States Patent and Trademark Office at
Reel 039582, Frame 0478, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Signature	Date: 9/5/2019
Jasper Spanbroek	General Counsel, KPN
Printed or Typed Name	Title or Registration Number

US009654330B2

(12) **United States Patent**
Stokking et al.

(10) **Patent No.: US 9,654,330 B2**
(45) **Date of Patent: *May 16, 2017**

(54) **METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM**

(71) Applicant: **Koninklijke KPN N.V.**, The Hague (NL)

(72) Inventors: **Hans Maarten Stokking**, The Hague (NL); **Mattijs Oskar Van Deventer**, Leidschendam (NL); **Fabian Arthur Walraven**, Groningen (NL); **Omar Aziz Niamut**, Vlaardingen (NL)

(73) Assignee: **Koninklijke KPN N.V.**, The Hague (NL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/015,765**

(22) Filed: **Aug. 30, 2013**

(65) **Prior Publication Data**

US 2014/0040350 A1 Feb. 6, 2014

Related U.S. Application Data

(63) Continuation of application No. 12/808,665, filed as application No. PCT/EP2008/011014 on Dec. 22, 2008, now Pat. No. 8,549,151.
(Continued)

(30) **Foreign Application Priority Data**

Feb. 12, 2008 (EP) 08002517

(51) **Int. Cl.**

G06F 15/16	(2006.01)
H04L 29/06	(2006.01)
H04L 29/08	(2006.01)

(52) **U.S. Cl.**
CPC .. ***H04L 29/06517*** (2013.01); ***H04L 29/08522*** (2013.01); ***H04L 65/103*** (2013.01);
(Continued)

(58) **Field of Classification Search**
USPC 709/227
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,661,785 B1 * 12/2003 Zhang H04L 29/06027 370/352
6,895,439 B2 * 5/2005 Isomaki et al. 709/229
(Continued)

FOREIGN PATENT DOCUMENTS

EP 1890463 2/2008
SE WO 2007101473 A1 * 9/2007 ..... H04N 7/17318
(Continued)

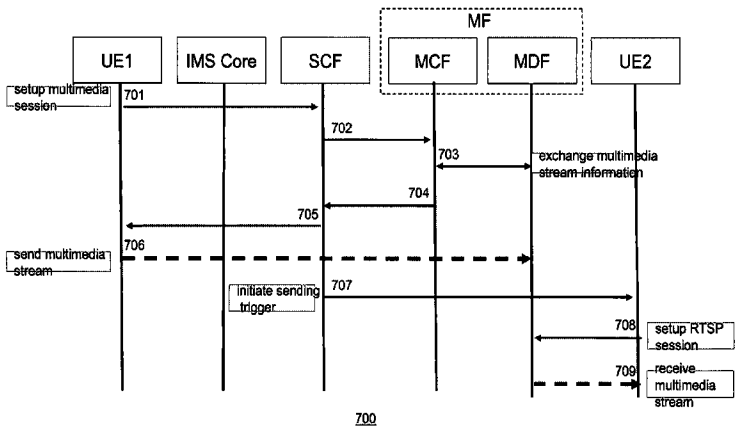
OTHER PUBLICATIONS

Schulzrinne, H. et al., RFC 2326: Real Time Streaming Protocol (RTSP), Apr. 1998, IETF, pp. 1-92.*
(Continued)

Primary Examiner — Alicia Baturay
(74) *Attorney, Agent, or Firm* — McDonnell Boehnen Hulbert & Berghoff LLP

(57) **ABSTRACT**

A method is described for transmitting a multimedia stream from a first terminal and receiving an associated second multimedia stream at a second terminal. The first and second terminal are connected to at least one gateway for enabling the transmission of the stream and the receiving of the associated stream. The method comprises: —initiating the exchange of first multimedia session information between the first terminal and the gateway, using a first protocol; —providing a trigger to the second terminal to initiate the exchange of second multimedia session information
(Continued)



between the second terminal and the gateway, using a second protocol; —in response to providing the trigger, the second terminal initiating the exchange of second multimedia session information between the second terminal and the gateway, using a third protocol; —transmitting a first multimedia stream from the first terminal and receiving a second associated multimedia stream at the second terminal.

22 Claims, 9 Drawing Sheets

Related U.S. Application Data

(60) Provisional application No. 61/008,644, filed on Dec. 21, 2007.

(52) **U.S. Cl.**
CPC ***H04L 65/104*** (2013.01); ***H04L 65/1006*** (2013.01); ***H04L 65/1069*** (2013.01); ***H04L 65/4076*** (2013.01); ***H04L 69/08*** (2013.01); *H04L 65/1016* (2013.01); *H04L 65/608* (2013.01)

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,043,528	B2 *	5/2006	Schmitt	H04N 7/152 348/E7.084
7,181,537	B2 *	2/2007	Costa-Requena et al.	709/246
7,231,658	B2 *	6/2007	Kunito	H04L 63/126 709/223
7,286,521	B1 *	10/2007	Jackson	H04M 7/1245 370/352
7,330,283	B2 *	2/2008	Lee	H04L 1/0007 358/1.15
7,440,440	B1 *	10/2008	Abichandani	H04M 3/42212 370/351
7,532,890	B2 *	5/2009	Davies	H04L 12/587 370/395.5
7,539,177	B2 *	5/2009	Hoffmann	H04M 3/428 370/352
7,639,384	B2 *	12/2009	Lee	H04L 1/0007 358/1.15
7,643,411	B2 *	1/2010	Andreasen	G06Q 20/102 370/229
7,716,310	B2 *	5/2010	Foti	H04L 65/1069 709/220
7,724,691	B2 *	5/2010	Mela et al.	370/261
7,792,025	B2 *	9/2010	Segel	H04L 12/5695 370/230
7,804,848	B2 *	9/2010	Mirtorabi et al.	370/466
7,953,867	B1 *	5/2011	Andreasen	H04L 65/1006 709/203
7,961,714	B1 *	6/2011	Watson	H04L 12/66 370/352
8,027,353	B2 *	9/2011	Damola	H04L 29/06217 370/401
8,032,589	B2 *	10/2011	Foti	H04L 65/4084 709/203
8,046,479	B2 *	10/2011	Einarsson	H04N 7/17318 709/217
8,098,627	B2 *	1/2012	Dutta	H04W 36/0038 370/331
8,180,338	B1 *	5/2012	Sylvain	H04W 76/026 455/422.1
8,549,151	B2 *	10/2013	Stokking	H04L 65/104 709/227
8,752,107	B2 *	6/2014	Åstrom	H04N 7/17318 725/106
2002/0004835	A1 *	1/2002	Yarbrough	H04L 29/06 709/230
2005/0135366	A1 *	6/2005	Trappeniers	H04N 7/17318 370/390
2005/0141542	A1	6/2005	Handekyn et al.	
2006/0128376	A1 *	6/2006	Alexis	455/426.1
2006/0291472	A1 *	12/2006	Guo et al.	370/395.5
2007/0025301	A1 *	2/2007	Petersson	H04L 47/10 370/338
2007/0177616	A1	8/2007	Jabri et al.	
2007/0201484	A1 *	8/2007	Kenrick	H04L 29/06027 370/395.5
2008/0092178	A1 *	4/2008	McNamara	H04N 21/41407 725/62
2009/0100147	A1 *	4/2009	Igarashi	H04N 7/17309 709/218
2009/0180484	A1 *	7/2009	Igarashi	H04N 7/17309 370/401
2009/0190603	A1	7/2009	Damola et al.	
2009/0193469	A1 *	7/2009	Igarashi	H04N 7/17309 725/56
2009/0217337	A1	8/2009	Åström	
2009/0235317	A1 *	9/2009	Igarashi	H04N 7/17309 725/82
2009/0307307	A1 *	12/2009	Igarashi	H04N 7/17309 709/203
2009/0313376	A1 *	12/2009	Cedervall	H04L 65/1016 709/227
2010/0005177	A1 *	1/2010	Cagenius	H04N 7/17318 709/228
2010/0005501	A1 *	1/2010	Stokking	G10H 1/365 725/115
2011/0209188	A1 *	8/2011	Petersson	H04L 63/08 725/110

FOREIGN PATENT DOCUMENTS

WO	2007140812	12/2007	
WO	WO 2007140834 A1 *	12/2007	H04L 29/06

OTHER PUBLICATIONS

International Search Report and Written Opinion, PCT International Application No. PCT/EP2008/011014 dated Dec. 22, 2008.

European Extended Search Report, European Patent Application No. 08002517.4 dated Jul. 4, 2008.

Fresa, A. et al., "A Testbed for Experimentation of Innovative Services in the B3G Framework", Testbeds and Research Infrastructures for the Development of Networks and Communities, Feb. 23-25, 2005, pp. 110-119.

Whitehead, S. et al., "An Evaluation of Session Initiation Protocol (SIP) for Use in Streaming Media Applications", Standard-Working-Draft, Internet Engineering Task Force, IETF, No. 2, Oct. 22, 2006, whole document.

Friedrich, O. et al., "Next Generation IPTV Services for an Extended IMS Architecture", Autonomous Decentralized Systems, 2007, Eight International Symposium on IEEE, Mar. 1, 2007, 6 pages.

Takei, Kentaro et al., "Design of Gateway System Between Different Signaling Protocols of the Multimedia Session on the Internet", Information Networking, 2001, Proceedings 15th International Conference, pp. 297-302.

Singh, K. et al., "Interworking Between SIP/SDP and H.323", Internet Engineering Task Force Internet Draft, Jan. 2000, pp. 1-39.

Khan, S. et al., "Experiences with Blending HTTP, RTSP, and IMS", IEEE Communications Magazine IEEE USA, vol. 45, No. 3, Mar. 2007, pp. 122-128.

Bodzinga, Anne et al., "Interworking IPTV Services with IMS", Telecommunications Network Strategy and Planning Symposium, Nov. 2006, pp. 1-5.

Anonymous, "MoFu IVAS Interactive Video Applicatino Server", Whitepaper, Mobilfuture, [Online], Dec. 2006, pp. 1-21, http://mobilfuture.kei.pl/files/MoFu_IVAS_whitepaper_v1.0.pdf.

Weldon, "IMS and IPTV, Perfect Together", Internet Citation [online], Jan. 17, 2006, http://ipcommunications.tmcnet.com/hot-topics/ims/articles/280-ims-iptv-perfect-together.htm, pp. 1-4.

(56) **References Cited**

OTHER PUBLICATIONS

Singh, Kundan et al., "Interworking Between SIP/SDP and H.323", IP Telecom Services Workshop, Sep. 2000, whole document.
Burger, E., "A Mechanism for Content Indirection in Session Initiation Protocol (SIP) Messages", Network Working Group, Request for Comments 4483, www.rfc-editor.org/rfc/rfc4483.txt, May 2006.
Schulzrinne, H. et al., "Real Time Streaming Protocol 2.0 (RTSP)", MMUSIC Working Group, Internet-Draft, Nov. 19, 2007, draft-ietf-mmusic-rfc2326bis-16.txt.
Schulzrinne, H. et al., RFC 2326: Real Time Streaming Protocol (RTSP), Apr. 1998, IETF.
ETSI, "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); IPTV Architecture; IPTV Functions Supported by the IMS Subsystem", ETSI TS 182 027 V2.0.0 (2008), pp. 1-57.
3rd Generation Partnership Project, 3GPP TS 26.237 V8.0.0 (Dec. 2008), "IMS based PSS and MBMS User Service" Protocols (Release 8), 2008.
Schulzrinne, H. et al., RFC 3550: RTP: A Transport Protocol for Real-Time Applications, Jul. 2003, IETF.
Rosenberg, J. et al., RFC 3261: SIP: Session Initiation Protocol, Jun. 2002, IETF.
Handley, M. et al. RFC 4566: SDP: Session Description Protocol, Jul. 2006, IETF.
Recommendation ITU-T H.248.1, Gateway control protocol: Version 3, 2013.
Rosenberg, J., "Voice on the Net and the IETF" Lucent Technologies, VoN and IETF: Iband98, Nov. 1998.
Singh, K and Schulzrinne, H., "Unified Messaging using SIP and RTSP" IP Telecom ServicesWorkshop, Sep. 2000, Atlanta, Georgia.
Wikipedia entry, "Session Initiation Protocol" 2007, at http://en.wikipedia.org/wiki/Session_Initiation_Protocol.
Wikipedia entry, "Session Description Protocol" 2007, at http://en.wikipedia.org/wiki/Session_Description_Protocol.
Wikipedia entry, "Real-time Transport Protocol" 2007, at http://en.wikipedia.org/wiki/Real-time Transport Protocol.
Wikipedia entry, "Real Time Streaming Protocol" 2007, at http://en.wikipedia.org/wiki/Real Time Streaming Protocol.
Ericpol Telecom, SIP-RTSP Gateway, Marketing Webpage, 2007, at http://www.ericpol.pl/index.php/en/network_migration/sip_rtsp_gateway/.
Ericpol i-Evolution, "Network Migration & Combinatorial Services" Marketing Whitepaper, 2004.
Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IMS-based IPTV stage 3 specification; ETSI TS 183 063 V2.1.0 (Jun. 2008).
Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Dedicated IPTV subsystem stage 3 specification; ETSI TS 183 064 V2.1.1 (Oct. 2008).
Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IPTV Architecture; Dedicated subsystem for IPTV functions; ETSI TS 182 028 V2.0.0 (Jan. 2008).
Meng Guo; Ammar, M.H.; Zegura, E.W. "A Vehicle-to-Vehicle Live Video Streaming Architecture," Pervasive Computing and Communications, 2005. PerCom 2005. Third IEEE International Conference on Mar. 8-12, 2005 Page(s):171-180.

* cited by examiner

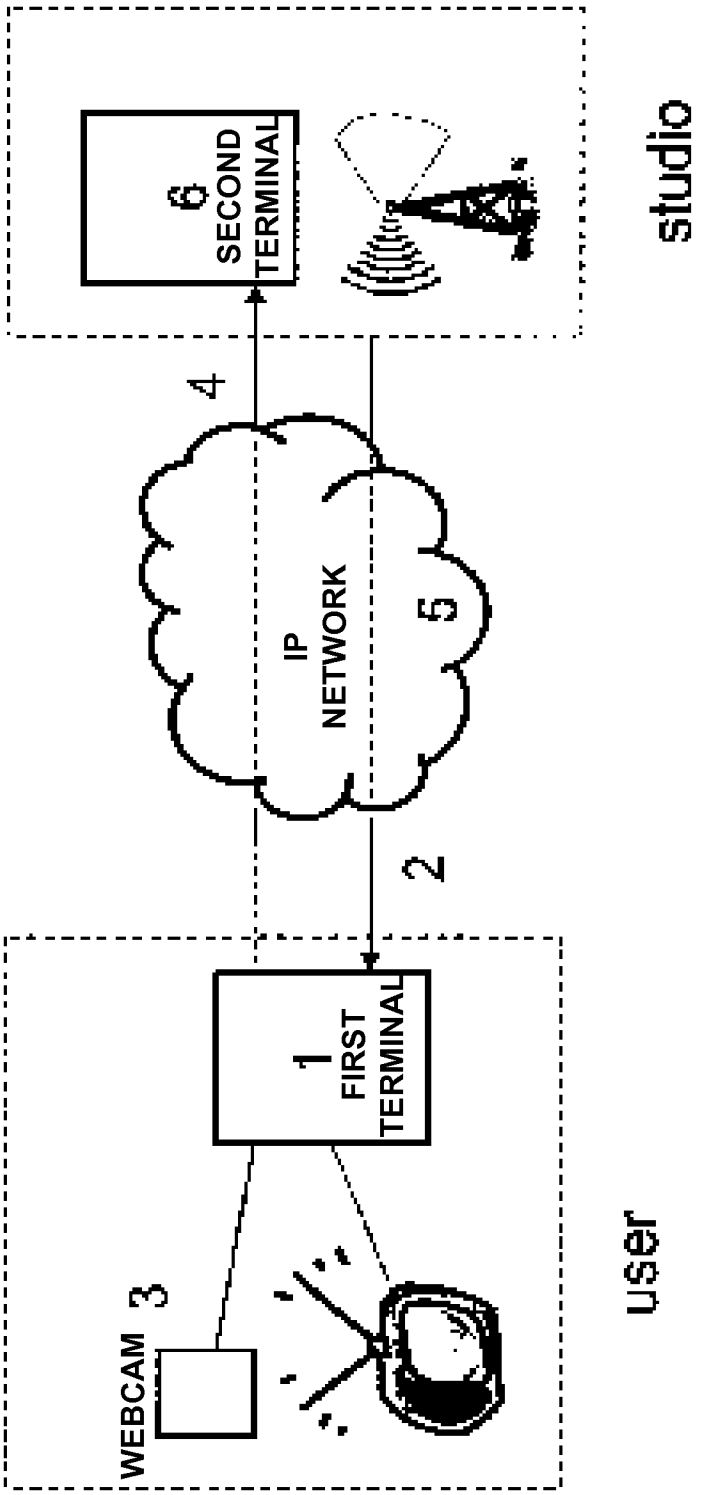

studio
6
SECOND
TERMINAL
4
IP
NETWORK
5
2
1
FIRST
TERMINAL
WEBCAM
3
user

Figure 1

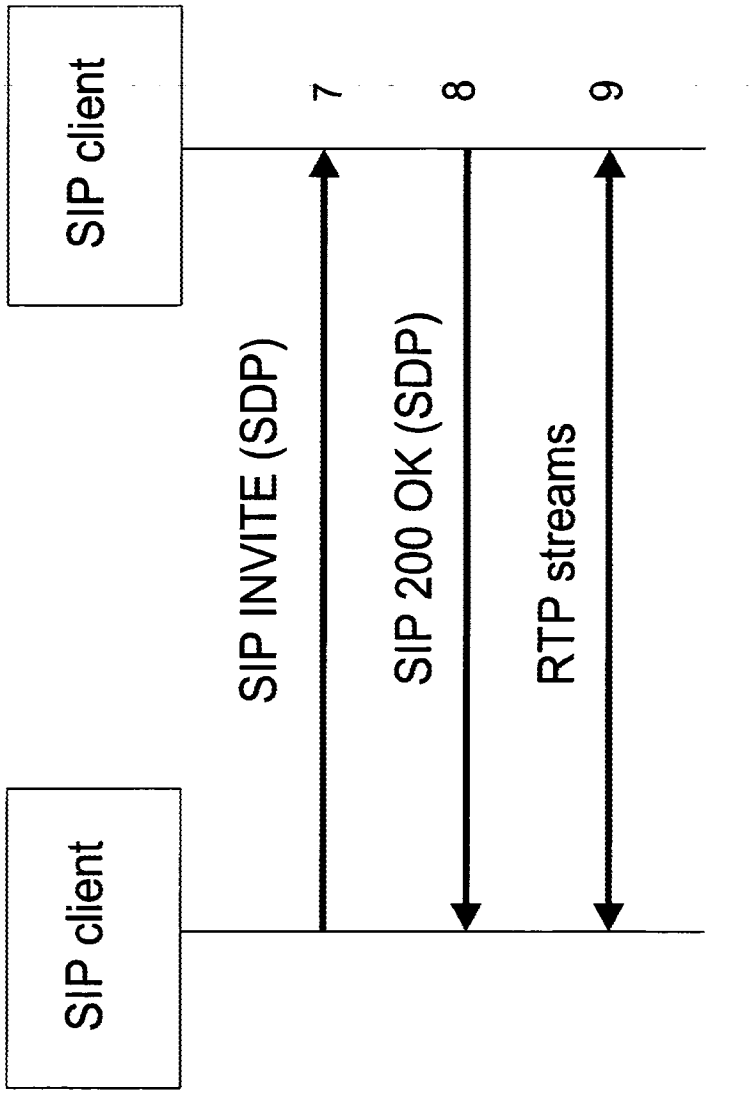

SIP client
SIP client
7
8
9
SIP INVITE (SDP)
SIP 200 OK (SDP)
RTP streams

Figure 2

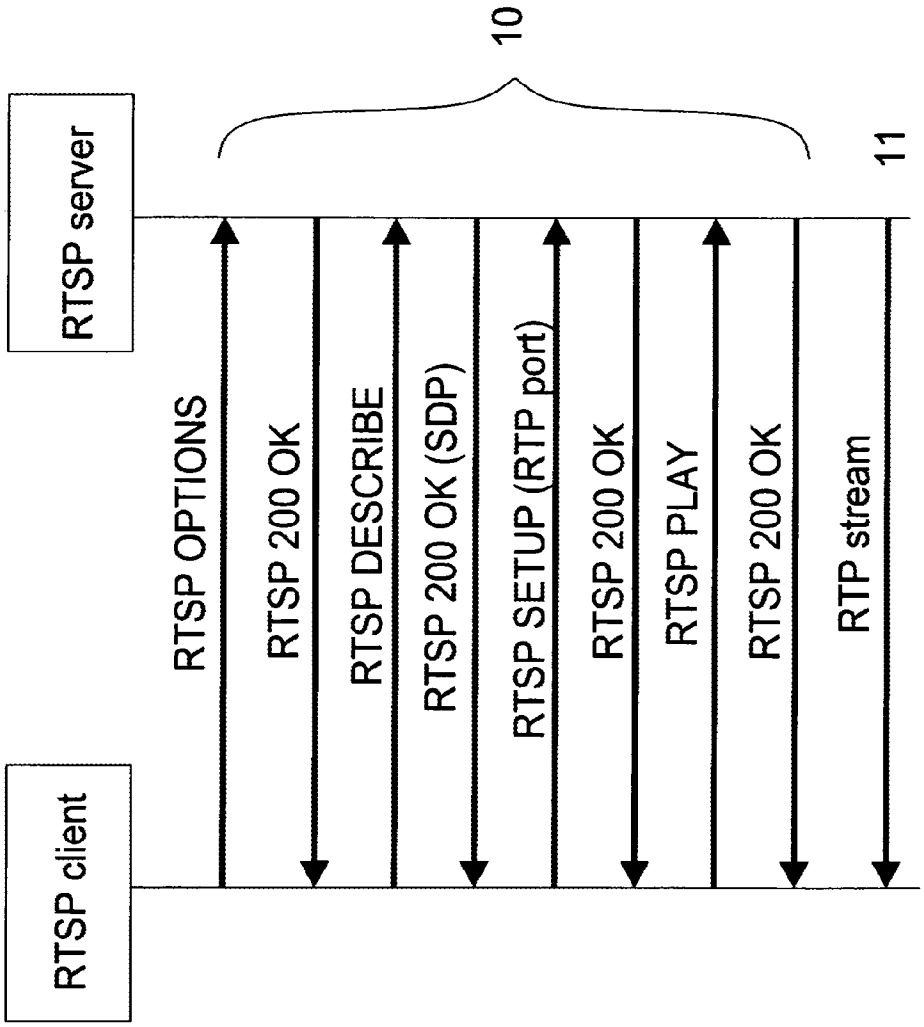

10
11
RTSP server
RTSP client
RTSP OPTIONS
RTSP 200 OK
RTSP DESCRIBE
RTSP 200 OK (SDP)
RTSP SETUP (RTP port)
RTSP 200 OK
RTSP PLAY
RTSP 200 OK
RTP stream

Figure 3

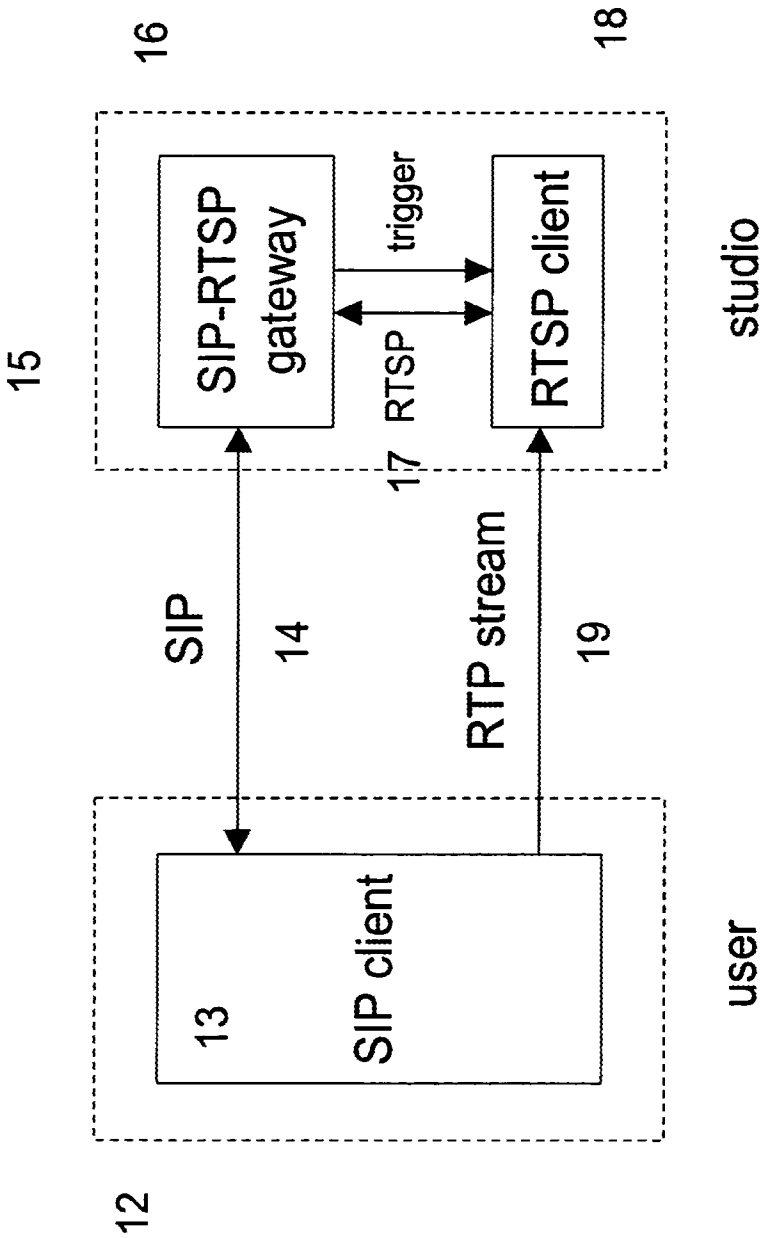

16
18
15
SIP-RTSP gateway
trigger
RTSP client
RTSP
17
studio
SIP
14
RTP stream
19
13
SIP client
user
12

Figure 4

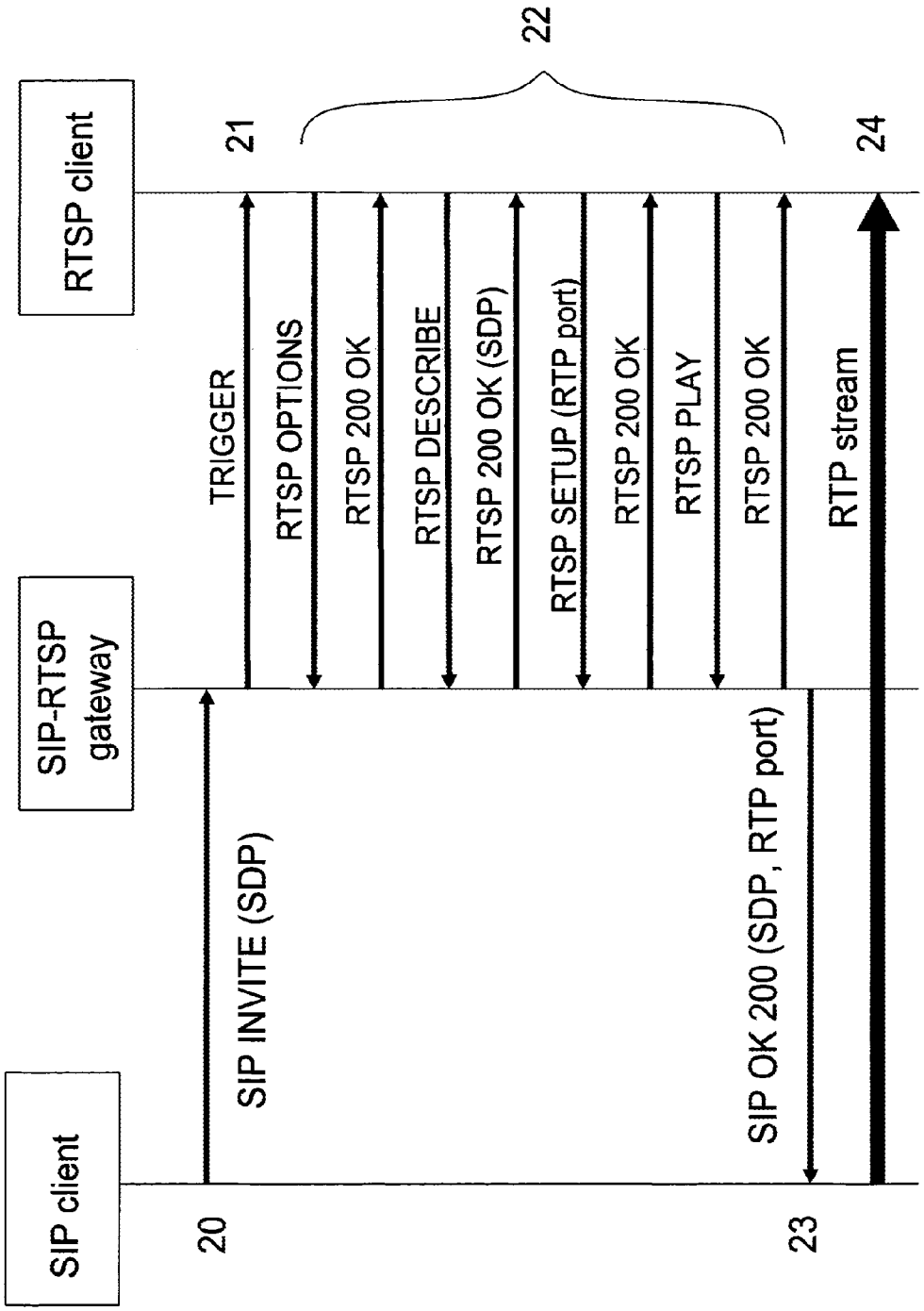

SIP client
SIP-RTSP gateway
RTSP client
20
21
22
23
24
SIP INVITE (SDP)
TRIGGER
RTSP OPTIONS
RTSP 200 OK
RTSP DESCRIBE
RTSP 200 OK (SDP)
RTSP SETUP (RTP port)
RTSP 200 OK
RTSP PLAY
RTSP 200 OK
SIP OK 200 (SDP, RTP port)
RTP stream

Figure 5 (a)

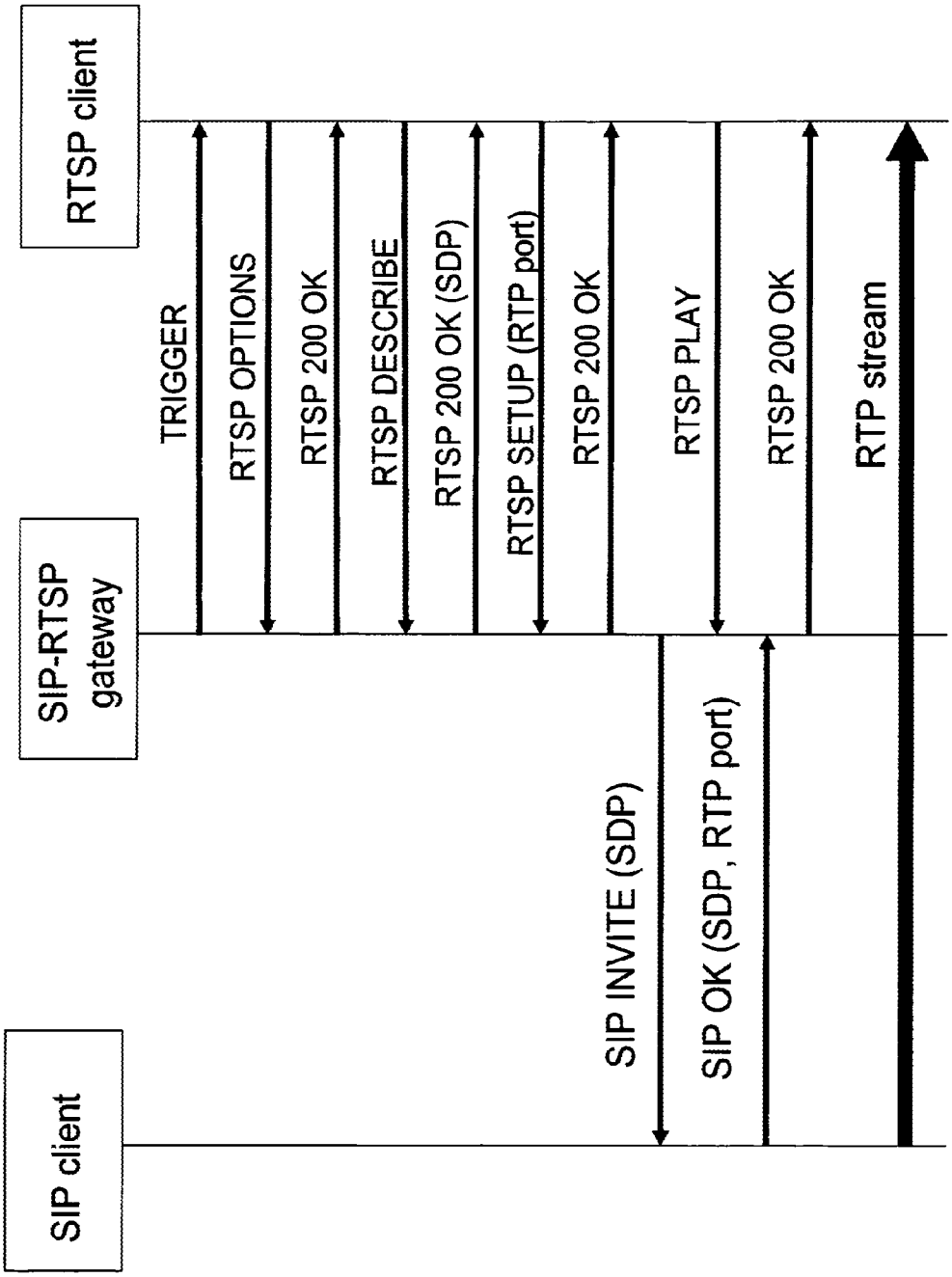

RTSP client
SIP-RTSP gateway
SIP client
TRIGGER
RTSP OPTIONS
RTSP 200 OK
RTSP DESCRIBE
RTSP 200 OK (SDP)
RTSP SETUP (RTP port)
RTSP 200 OK
RTSP PLAY
RTSP 200 OK
RTP stream
SIP INVITE (SDP)
SIP OK (SDP, RTP port)

Figure 5 (b)

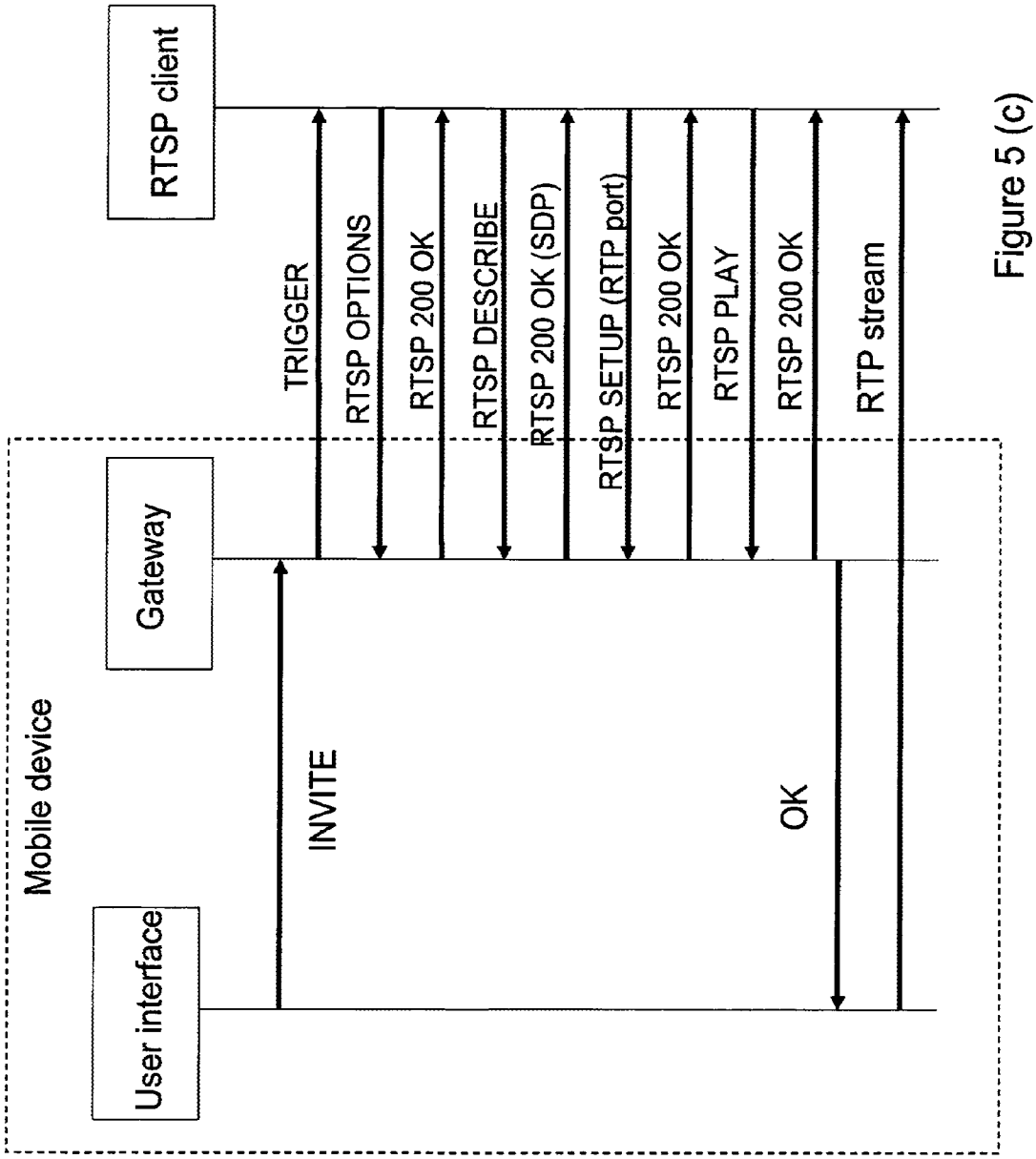

RTSP client
Gateway
Mobile device
User interface
TRIGGER
INVITE
RTSP OPTIONS
RTSP 200 OK
RTSP DESCRIBE
RTSP 200 OK (SDP)
RTSP SETUP (RTP port)
RTSP 200 OK
RTSP PLAY
RTSP 200 OK
OK
RTP stream

Figure 5 (c)

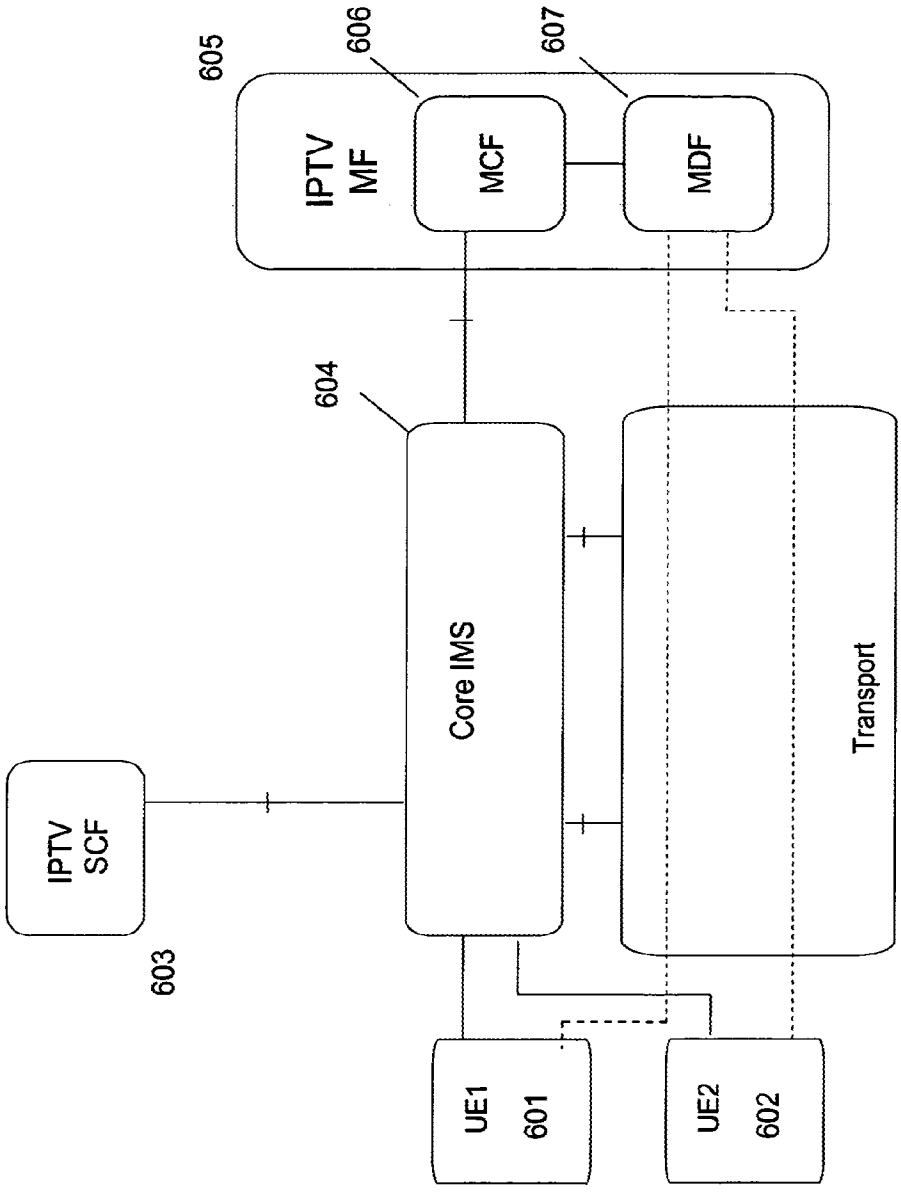

605
606
607
IPTV MF
MCF
MDF
604
Core IMS
Transport
IPTV SCF
603
UE1 601
UE2 602
600

Figure 6

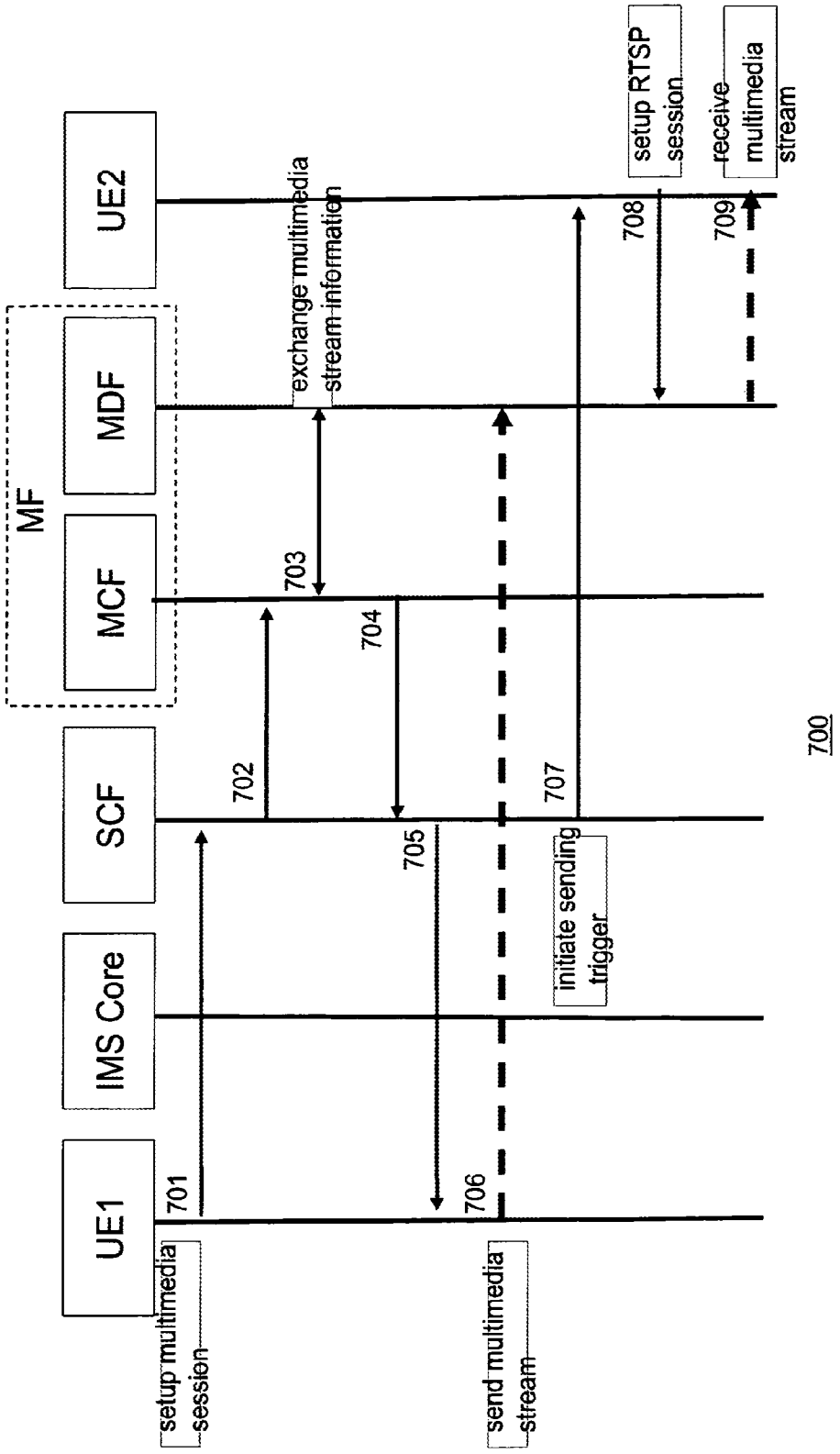

UE1
IMS Core
SCF
MF
MCF
MDF
UE2
setup multimedia session
701
initiate sending trigger
exchange multimedia stream information
702
703
704
705
706
707
setup RTSP session
708
receive multimedia stream
709
send multimedia stream
700

Figure 7

METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM

CROSS REFERENCE TO RELATED APPLICATIONS

The present patent application is a continuation of U.S. patent application Ser. No. 12/808,665, entitled "Method and system for transmitting a multimedia stream," filed Jun. 16, 2010, which is a national stage entry of PCT/EP2008/11014, filed Dec. 22, 2008, which claims priority to U.S. Provisional Patent Application Ser. No. 61/008,644, filed Dec. 21, 2007, and to European Patent Application No. 08002517.4, filed Feb. 12, 2008. The full disclosure of U.S. patent application Ser. No. 12/808,665 is incorporated herein by reference.

FIELD OF THE INVENTION

The invention relates to a method and a system for transmitting a multimedia stream from a first terminal to a second terminal. In particular, the invention relates to a method and system for transmitting a first multimedia stream from a first terminal and receiving a second associated stream at a second terminal. The invention further relates to a gateway and a device for use in such system.

BACKGROUND OF THE INVENTION

IP Multi-Media Subsystem (IMS) defined by the 3GPP and 3GPP2 standards open the door to a whole range of new multimedia services, such as Voice over IP (VoIP) and IPTV. The IMS service architecture enables to combine multimedia services of various types.

One type of services may enable viewers at home to participate real-time in a live TV show using e.g. a webcam at home. The multimedia streams generated by the webcam are transported from the home-located user over an IP network to the TV studio using the Real-time Transport Protocol (RTP). In an IMS based architecture such multimedia streaming sessions between clients are set up using the Session Initiation Protocol (SIP), whereas the Real Time Streaming Protocol (RTSP) is typically used for streaming multimedia content from a server to a client.

Systems that provide an interface between SIP and RTSP domains, usually referred to as SIP-RTSP gateways, are known in the art. Within ETSI TISPAN Standardization (WI2048, TS 182 027) an architecture is proposed in which a terminal, comprised in a device such as for example a set-top box, a personal computer, a personal digital assistant (PDA) or a mobile telephone with multi-media capabilities, uses SIP to set up a multimedia session with a selected content provider. After establishment of the session, RTSP is used to select, retrieve and control the streamed content. Further, the University of Colombia (Kundan Singh and Henning Schulzrinne, "Unified Messaging using SIP and RTSP", IP Telecom Services Workshop, September 2000, Atlanta, Ga., US) has developed a SIP-RTSP Gateway for multimedia unified messaging.

These systems use SIP and RTSP clients at the user side and SIP clients and RTSP servers in the network, thereby enabling a user to initiate the set up multimedia session in which multimedia content is streamed from the RTSP servers to the user.

Another gateway system that may be used to stream multimedia between different protocol domains is described in TAKEI K ET AL "Design of gateway system between different signaling protocols of the multimedia session on the internet" INFORMATION NETWORKING, 2001. PROCEEDINGS. 15TH INTERNATIONAL CONFERENCE ON 31 January-2 February, PISCATAWAY, NJ, USA, IEEE, 2001, PAGES 297-302, ISBN: 0-7695-0951-7/01. This system is used to interwork the SIP and the H323 protocol domains. Both protocols are peer-to-peer type protocols and allow for bidirectional set-up/initiation of sessions.

One problem related to these known systems is that they do not provide all the functionality needed for the above mentioned services, which require the user to initiate the set up a multimedia session such that user-generated content is streamed from the user (the transmitting-end) to the studio (the receiving-end), whereby the studio may want to control the stream of user generated content. A known protocol for controlling a stream is RTSP, whereby the receiving-end, with RTSP client functionality, may be able to pause, or forward or backward a stream, or play a stream at a different speed. If the transmitting-end on the other hand is only capable of using the SIP protocol for setting up and maintaining the multimedia streaming session, the mentioned services cannot be realized with the known prior art systems, since the SIP protocol does not provide the means for controlling a stream in the way that for instance the RTSP protocol is capable of.

Another problem related to the streaming of multimedia, that may arise with prior art systems, is that when the receiving-end is only equipped with client functionality of a client-server type of protocol for receiving multimedia, it may only be capable of initiating a multimedia session. If the transmitting-end, using for example a peer-to-peer type of protocol, such as the SIP protocol, wants to initiate a multimedia streaming session, the receiving-end is not capable to respond to such an invitation. Prior-art systems, such as the known SIP-RTSP gateways and the known SIP-H323 gateways do not provide a solution for this problem.

A variety of additional problems may arise with prior art systems, when the user generated multimedia has to be streamed to a multiple of receiving-ends. These receiving-ends may all have different capabilities or preferences when it comes to receiving a multimedia stream. One receiving-end may want to receive a live stream, whereas the other may want to be able to control the stream as described above. Additionally these preferences and capabilities, as well as the network addresses of the receiving-ends, may not be known to the transmitting-end.

SUMMARY OF THE INVENTION

It is an object of the invention to reduce or eliminate at least one of the drawbacks known in the prior art and to provide a method and system for transmitting a first multimedia stream from a first terminal and receiving a second associated multimedia stream at a second terminal.

In an embodiment the first and second terminal are connected to at least one gateway for enabling the transmission of the first multimedia stream and the receiving of the second associated stream. The method comprises the steps of:

initiating the exchange of first multimedia session information between the first terminal and the gateway, using a first protocol;

providing a trigger to the second terminal to initiate the exchange of second multimedia session information between the second terminal and the gateway, using a second protocol;

in response to the providing of the trigger, the second terminal initiating the exchange of second multimedia session information between the second terminal and the gateway, using a third protocol, the third protocol being different from the second protocol;

transmitting a first multimedia stream from the first terminal and receiving a second associated multimedia stream at the second terminal.

The method thus allows the user of a first terminal to transmit a multimedia stream of real-time user-generated content to a second terminal, whereby the first terminal uses a different multimedia protocol to set up a multimedia stream as that the second terminal uses to receive the associated multimedia stream.

In the method according to the embodiment a gateway is capable of connecting a first terminal supporting a first protocol, e.g. SIP, to a second terminal supporting a different (third) protocol, e.g. RTSP. Towards the first terminal, i.e. the (originating) SIP client at the user side, the gateway acts as (terminating) SIP client. The gateway exchanges information about the specifications of the first multimedia session with the first terminal. In the first multimedia session a multimedia stream is transmitted from the first terminal. Towards the second terminal, i.e. the RTSP client, the gateway acts as RTSP server on behalf of the user, whereby the second terminal uses RTSP for exchanging information about the specifications of the second multimedia session with the gateway. In the second multimedia session a multimedia stream is received by the second terminal.

The second terminal is triggered, using a second protocol that is different from the protocol used by the second terminal to exchange second multimedia session information, informing the second terminal of the availability of a new multimedia stream and activating the RTSP client to connect to the RTSP server function of the gateway. Optionally the activation of the RTSP client may occur only after approval of the user of the second terminal. The approval step is then simply part of the fully automated process.

The gateway acts both as a SIP client and RTSP server and may provide a trigger to the second terminal for connecting the second terminal to the gateway. The invention is based on the idea that the trigger is provided using a different protocol then the protocol used by the second terminal to arrange the receipt of multimedia. This idea is based on the insight that some protocols are only capable of initiating a multimedia session in one direction. The trigger (message) ensures that SIP clients from the user and RTSP clients from the studio can be connected in order to enable user-generated content to be transmitted from the first terminal to the second terminal.

In a further embodiment of the method according to the invention, the exchange of first multimedia session information comprises the providing to the first terminal of at least part of the second multimedia session information and whereby transmitting of the first multimedia stream from the first terminal is started in response to said providing. This has the advantage of providing additional flexibility to the method. It is no longer the gateway that supplies preconfigured specifications of both related multimedia sessions to the terminals involved in the transmitting and receiving of the stream, but the gateway may use (requested by) settings from the second receiving terminal, and supply these to the first, transmitting, terminal. Vice versa, and for the same benefit, the gateway may use (requested by) settings from the first transmitting terminal, and supply these to the second, receiving, terminal. In both situations the transmitting, respectively receiving of multimedia streams may only start after the exchange of these settings.

In an embodiment of the method, the first protocol is a peer to peer type protocol, preferably the Session Initiation Protocol (SIP). The advantage of the peer-to-peer protocol is that both sides may initiate the set-up of a streaming session. So in the invention, it may be the first terminal offering a multimedia stream or it may be the gateway first requesting the first terminal to offer a multimedia stream. The SIP protocol is a very commonly used protocol in multimedia sessions, and therefore a lot of devices and network architecture support this protocol.

In a further embodiment of the method the third protocol is a client-server type protocol, preferably the Real Time Streaming Protocol (RTSP). Typically a client-server type of protocol is a protocol that is designed to support only one way initiation of the set up of a multimedia session. Only the client can typically initiate the set-up. Therefore the invention is advantageously used when the second receiving terminal has only client capabilities of such a protocol and therefore is unable to receive an invitation via such a protocol. The use of the RTSP protocol, may be advantageous, when the receiving second terminal wants to control the incoming stream and use the special control options of this protocol.

In a further embodiment of the method, the step of providing a trigger to the second terminal is initiated by the gateway. Having the gateway and not for example the first terminal provide the trigger, may be advantageous when the first terminal does not have the right trigger capabilities, does not know how to reach the second terminal, and in case of a multiple of receiving terminals, that need to be reached.

In yet a further embodiment of the method, the trigger comprises a network address, preferably an URI or URI reference, of the gateway. This may be advantageous, if the second terminal is not configured with a default address, or the default (proxy) address normally used for receiving multimedia streams is not applicable.

In another embodiment of the method, the exchange of first multimedia session information comprises the provisioning of an identifier of the second terminal to the gateway. This may be advantageous, if it is the gateway that provides the trigger to the second terminal. In that situation, it is the gateway that needs to be able to identify the address of the second terminal to be reached.

In a further embodiment of the method, the method comprises the addition step of resolving the identifier of the second terminal into a network address, before provisioning of the trigger to the second terminal. This may be the situation, when the trigger is sent by the gateway and the identifier does not comprise of a network address of the second terminal. The identifier may be a closed user group ID, in which case all network addresses of all receiving terminals need to be identified first.

In another embodiment according to the method, the first and the second protocol are identical. This simplifies the implementation of the invention. A situation like this may occur when the receiving terminal has both RTSP and SIP client capabilities. The trigger may then be provided using the SIP protocol, whereas the initiation and set up of the receipt of the multimedia stream may be done, using the RTSP client, thus enabling control functionalities (trickplay) that SIP lacks.

In another embodiment of the method, the second associated multimedia stream is a multicast stream. This may be advantageous when a multiple of receiving terminals may be offered the live multimedia stream. They may, after being provided with the trigger, and having received a multicast address from the gateway in the exchange of second multimedia session information, use IGMP to sign-up for the multicast.

In a further embodiment of the method the first multimedia stream is a multicast stream. This is advantageous when the first transmitting terminal has (received) a multicast address it can use to multicast its multi-media stream.

In yet a further embodiment of the method, the first multimedia stream is the same multimedia stream as the second associated multimedia stream. In this case the (live) content may also be received live/without any substantial delay from the transmitting first terminal. For enabling additional trickplay (control) functionality, the transmitted multimedia stream needs to be streamed and buffered first to a location under the control of a multimedia server such as a RTSP server, before it is retransmitted as a second associated stream to a second terminal. The additional control functions (e.g. forward, backward, pause) may then be exerted on this second associated stream.

In another embodiment of the method, the first terminal and the gateway are both comprised in the same device and the first protocol is an internal protocol. This may be an advantageous implementation when the network (or studio/receiving-end) does not have the gateway functionality according to the invention. Preferably this situation may occur when there exist a one-to-one relationship between the transmitting and receiving terminal, and both terminals are comprised in mobile devices.

In an aspect the invention relates to a system for transmitting a multimedia stream from a first terminal and receiving an associated second multimedia stream at a second terminal, wherein the system comprises:

- a first terminal and second terminal connected to at least one gateway,
- wherein the first terminal comprises (i) means for exchanging first multimedia session information with the gateway, using a first protocol, and (ii) means for transmitting a first multimedia stream;
- wherein the gateway or first terminal comprises (iii) means for triggering a second terminal, using a second protocol, —to initiate the exchange of second multimedia session information between the second terminal and the gateway, using a third protocol,
- wherein the second terminal comprises (iv) means for receiving a trigger, using a second protocol, and v) means for initiating the exchange of second multimedia session information with the gateway in response to said trigger, using a third protocol, and (vi) means for receiving a second multimedia stream, associated with the first multimedia stream;

In a further embodiment of the system according to the invention, the gateway further comprises means for associating the first multimedia session information to the second multimedia session information. This may be advantageous, when the gateway does not have a default configuration, how to instruct transmitting and receiving terminals, but when a more flexible arrangement is required, whereby the setting requests and capabilities of the terminals involved is taken into account when setting up the multi-media sessions.

Yet another aspect of the invention relates to a gateway configured for use in the system according to the invention, wherein the gateway comprises:

- means for exchanging first multimedia session information with a first terminal, using a first protocol
- means for triggering the second terminal, the trigger being provided using a second protocol, in response to which the second terminal is able to initiate the exchange of second multimedia session information with the gateway, and
- means for exchanging second multimedia session information with the second terminal, using the third protocol, the third protocol being different from the first protocol

In a further embodiment of the gateway according to the invention, the gateway further comprises means to associate the first multimedia session information and the second multimedia session information with each other

In yet a further embodiment of the gateway according to the invention, the gateway comprises SIP client functionality and RTSP server functionality.

In yet a further embodiment of the gateway according to the invention, the gateway is embedded in an IMS network architecture, wherein the first protocol is SIP, the third protocol is RTSP, and wherein

- means for exchanging first multimedia session information are part of the Service Control Function within IMS
- means for the triggering of the second terminal are part of the Service Control Function within IMS
- means for exchanging second multimedia session information are part of the Media Function within IMS

IMS is an architecture that is becoming more and more popular among operators to be used for the provisioning of multimedia services to its customers. The distributed gateway according to an embodiment of the invention, is particular advantageous, because it may be implemented using standard(ized) components and functionalities already present in the IMS architecture.

In one embodiment of the invention a first terminal is connected to a second terminal. Further, the first and second terminal are connected to at least one gateway for enabling the multimedia stream to be transmitted from the first terminal to the second terminal. The method comprises the steps of: (i) the first terminal inviting the gateway to set up a first multimedia session between the first terminal and the gateway, the first multimedia session being controlled by a first protocol; (ii) the gateway notifying—in response to the invitation—the second terminal of the pending invitation; (iii) the second terminal setting up—in response to the notification—a second multimedia session between the second terminal and the gateway, the second multimedia session being controlled by a second protocol; (iv) the gateway setting up—in response to the invitation—the first multimedia session; and (v) transmitting a multimedia stream from the first terminal to the second terminal.

The method according to the embodiment thus allows the user of a first terminal, which uses a first multimedia protocol, to stream real-time user-generated content to a second terminal, which uses a second multimedia protocol, where both the first and second terminal act as a client.

In the method according to the embodiment a gateway is capable of connecting a first terminal supporting a first protocol, e.g. SIP, to a second terminal supporting a second protocol, e.g. RTSP. Towards the first terminal, i.e. the (originating) SIP client at the user side, the gateway acts as (terminating) SIP client. The gateway confirms that it is able to receive the multimedia session from the user and provides first terminal with multimedia session information. Towards the second terminal, i.e. the RTSP client, the gateway acts as

RTSP server on behalf of the user, whereby the second terminal uses RTSP for session control.

The gateway informs the second terminal that an incoming session is pending and notifies the RTSP client to connect to the RTSP server function of the gateway.

The gateway thus acts as a server for both SIP and RTSP and uses a notification message for connecting to the second terminal RTSP client. This message acts as a trigger message and ensures that legacy SIP clients from the user and RTSP clients from the studio can be connected in order to enable user-generated content to be transmitted from the first terminal to the second terminal.

In one embodiment the first protocol is the Session Initiation Protocol (SIP). In a further embodiment the first terminal transmits an SIP INVITE to the gateway.

In a further embodiment the second protocol is the Real Time Streaming Protocol (RTSP).

In yet another embodiment the gateway transmits a notification message to the second terminal in response to invitation of the first terminal, in order to activate the second terminal to set up the second multimedia session between the second terminal and the gateway.

In one embodiment the method comprises the steps of: —the first terminal transmitting first multimedia session information to the gateway; —the gateway transmitting the first multimedia session information to the second terminal.

In another embodiment the method comprises the steps of: —the second terminal transmitting second multimedia session information to the gateway; —the gateway transmitting the second multimedia session information to the first terminal. The first multimedia session information and/or second multimedia session information is in a further embodiment transmitted using the Session Description Protocol (SDP).

In yet another embodiment the first terminal comprises a SIP client and/or the second terminal comprises an RTSP client.

In a further embodiment the invention relates to a method for transmitting a multimedia stream from a first terminal to a second terminal, wherein the first and second terminal are connected to a first and a second gateway respectively. The gateways are capable of setting up a multimedia session between the first and second terminal. The method comprises the steps of: (i) the first gateway preparing the first terminal for setting up a multimedia session with the second terminal, wherein a first protocol is used for the preparation of the first terminal; (ii) the first gateway inviting the second gateway to set up the multimedia session between the first terminal and the second terminal, the multimedia session being set up by a second protocol; (iii) the second gateway notifying—in response to the invitation—the second terminal to prepare the multimedia session with the first terminal wherein the first protocol is used for preparation of the second terminal; (iv) setting up—in response to the invitation—a multimedia session between first terminal and the second terminal; and (v) transmitting a multimedia stream from the first terminal to the second terminal.

In this embodiment the purpose of the first SIP-RTSP gateway at the user location and the second SIP-RTSP gateway at the studio location is to exchange the correct RTP information (IP addresses, port number, SDP session description, etc.) between the legacy SIP and RTSP functions. This allows the RTP stream to be set-up and controlled by the SIP session and enables the user to trigger the TV studio to retrieve the streamed user-generated content. The RTSP protocol may be used to control the RTP stream.

In one embodiment the first protocol may be the Real Time Streaming Protocol (RTSP). In another embodiment the second protocol is the Session Initiation Protocol (SIP).

In a further embodiment the second gateway transmits a notification message to the second terminal in response to the invitation of the first gateway, in order to activate the second terminal to set up the multimedia session between the first terminal and the second terminal.

In one embodiment the method further comprises the steps of: —the first gateway receiving first multimedia session information from the first terminal using the SDP protocol encapsulated in the first protocol and transmitting the first multimedia session information to the second gateway using the SPD protocol encapsulated in the second protocol; and—the second gateway receiving the first multimedia session information from the first gateway and transmitting the first multimedia session information to the second terminal using the SDP protocol encapsulated in the first protocol.

In another embodiment the method further comprises the steps of: —the second gateway receiving in response to the receipt of the first multi media session information second multimedia session information from the second terminal using the SDP protocol encapsulated in the first protocol and transmitting the second multimedia session information to the first gateway using the SPD protocol encapsulated in the second protocol; —the second gateway receiving the second multimedia session information from the second gateway and transmitting the second multimedia session information to the first terminal using the SDP protocol encapsulated in the first protocol.

The transmission of the multimedia stream from the first terminal to the second terminal is in one embodiment controlled by the RTSP protocol.

In a further embodiment the first terminal comprises a RTSP server connected to the first gateway and/or the second terminal comprises an RTSP client connected to the second gateway.

In a further aspect the invention relates to a system for transmitting a multimedia stream from a first terminal to a second terminal. In one embodiment the system comprises: a first terminal and second terminal connected to at least one gateway, wherein the first terminal comprises (i) means for inviting the gateway to set up a first multimedia session with the first terminal, wherein the first multimedia session is controlled by a first protocol and (ii) means for transmitting a multimedia stream in the first multimedia session to the gateway; and wherein the gateway comprises (iii) means for notifying—in response to the invitation of the first terminal—to set up a second multimedia session between the gateway and the second terminal, the second multimedia session being controlled by a second protocol, (iv) means for setting up—in response to the invitation—the first multimedia session and (v) means for transmitting a multimedia stream to the second terminal.

In a further embodiment a system is provided for transmitting a multimedia stream from a first terminal to a second terminal. The system comprises a first terminal and second terminal connected to a first and a second gateway respectively. The gateways are capable of setting up a multimedia session between the first and second terminal, wherein the first gateway comprises: (i) means for preparing the first terminal for setting up a multimedia session with the second terminal wherein a first protocol is used for the preparation of the first terminal; (ii) means for inviting the second

gateway to set up the multimedia session between the first terminal, the multimedia session being set up using a second protocol;

wherein the second gateway comprises: (iii) means for notifying the second terminal—in response to the invitation—to prepare the multimedia session with the first terminal, wherein the first protocol is used for the preparation of the second terminal and (iv) means for setting up—in response to the invitation—a multimedia session between first terminal and the second terminal.

In yet a further aspect the invention relates to a device comprising a first terminal configured for use in the method according to the invention, the device further comprising a gateway according to the invention. This may be advantageous when the (operator) network does not comprise or support a gateway according to the invention. The device may for instance be a first mobile device wanting to offer a live stream to a home computer reachable via the internet.

In another aspect of the invention a device is claimed, comprising a second terminal configured for use in the method according to the invention, the second terminal comprising:

- means for receiving a trigger, provided under the use of a second protocol
- means for initiating the exchange of second multimedia session information with the gateway, in response to the providing of the trigger to the second terminal, said initiating and exchange executed under the use of a third protocol, said third protocol being different from said second protocol.
- means for receiving a second multimedia stream associated to a first multimedia stream

Preferably this device is configured in such a way that the second terminal comprises a RTSP client and the third protocol used to initiate the exchange of second multimedia stream session information, is the RTSP protocol. This has the advantage that this device may now be able to control the receipt of a multimedia stream and thereby use the available trick play functionality provided by the RTSP protocol.

In a further aspect the invention also relates to a computer program product comprising software code portions configured for, when run in the memory of a terminal or gateway, executing the method steps according to the invention.

The invention will be further illustrated with reference to the attached drawing, which schematically show embodiments according to the invention. It will be understood that the invention is not in any way restricted to these specific embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates an exemplary system in which the present invention may be used.

FIG. **2** depicts a simplified exemplary flow of information using the SIP protocol.

FIG. **3** depicts an exemplary flow of information using the RTSP protocol.

FIG. **4** depicts an exemplary embodiment of the invention.

FIG. **5***a* depicts the flow of information between a SIP client, a SIP-RTSP gateway and a RTSP client in an exemplary embodiment of the invention.

FIG. **5***b* depicts the flow of information between a SIP client, a SIP-RTSP gateway and a RTSP client in another exemplary embodiment of the invention.

FIG. **5***c* depicts the flow of information between a SIP client, a SIP-RTSP gateway and a RTSP client in an exemplary embodiment of the invention, whereby the first terminal and the gateway are both comprised in a mobile device

FIG. **6** depicts an IMS architecture configured for use in the invention.

FIG. **7** depicts the flow of information in an exemplary IMS architecture configured for use in the invention.

DETAILED DESCRIPTION

FIG. **1** illustrates an exemplary system in which the present invention may be used. At the home-location a first terminal **1**, e.g. comprised in a set-top box, is connected to display device, e.g. a television. Further, the first terminal receives a TV signal **2**, which is broadcasted by the television studio and which comprises a program providing live multimedia participation of home-located user. In one embodiment the multimedia participation of the user may be realized using e.g. a web-cam **3** connected to the terminal. The multimedia stream **4** generated by the web-cam is streamed over an IP network **5** to a second terminal **6** located at the TV studio. At the TV studio the second terminal **6** receives the user-generated multimedia stream **4**. This way a live video feed from the user to the studio may be provided.

Such a service requires (i) a home-located user to be able to set up a multimedia session between the home-located, first terminal **1** and the second terminal **6** located at the studio, wherein the multimedia session enables the streaming of user-generated multimedia content **4** to the studio, and (ii) to enable the studio to control (e.g. play, pause, stop) the multimedia stream sent by the home-located terminal.

It is understood that the system at the home location allowing multimedia participation as described in connection with FIG. **1** may be realized in various alternative ways. Those skilled in the art will understand that the first terminal **1**, the display device and the web-cam may be for instance integrated in one device such as a personal computer, a digital assistant (PDA), a mobile telephone with multimedia capabilities. Similarly, the system at the studio may for example be a media server comprising the second terminal, wherein the second terminal comprises a RTSP client for multimedia stream retrieval. Alternatively, the second terminal may be located in a mixer or a transcoder and configured for multimedia stream adaptation.

In a further variant, the second terminal may be part of device, that is located at another (home) location, and may be used for user-to-user multimedia stream transmission. The device comprising the second terminal may be a dedicated Set-Top Box (STB), a personal computer or mobile phone containing media player software.

The first terminal may be regarded as a functional unit in a device, or a device capable of managing (initiating, negotiating, monitoring and controlling) the transmission of a multimedia stream. Similarly, the second terminal may be regarded as a functional unit in a device, or a device capable of managing (initiating, negotiating, monitoring and controlling) the receipt of a multimedia stream.

In an IMS architecture the SIP protocol is used to set up and/or negotiate a multimedia session between two SIP clients e.g. two IP phones. Here, the term client may indicate a certain capability of a device or terminal. For example a SIP client may refer to a device configured for using the SIP protocol or to a terminal having SIP capability.

An exemplary flow using the SIP protocol is depicted in FIG. **2**. Typically a first SIP client sends a SIP INVITE **7** to the second SIP client, which in return accepts the invitation by transmitting a SIP 200 OK **8** message to the first SIP

client. Both messages may carry information about the multimedia session. This information is exchanged using the Session Description Protocol (SDP), which may be encapsulated in the SIP protocol. The multimedia session information may include amongst others IP addresses, port numbers for the RTP streams, the type of media (voice, audio, video, etc.) and codec information. Thereafter, multimedia may be streamed between the SIP clients using the RTP protocol **9**.

SIP however is designed for setting up and supporting interactive media sessions. Although SIP also provides a form of aggregate streaming control (i.e. the ability to control multiple streams from different locations with one control session), it does not provide for an efficient control as provided by the RTSP protocol used in streaming applications such as Video on Demand (VoD). RTSP allows a client to remotely control a streaming media (RTSP) server by issuing VCR-like commands e.g. play, pause, stop, skip forward, skip backward etc. and allows time-based access to files on a server. Moreover, legacy equipment may require the use of RTSP, since legacy equipment may not be provided with a SIP client.

FIG. **3** schematically depicts an exemplary flow using the RTSP protocol. In setting up and controlling a RTSP multimedia session between an RTSP client and an RTSP server, standard RTSP messages **10** (OPTIONS, DESCRIBE, SETUP, PLAY) are exchanged between the client and the server in order to provide both sides with information required for an RTSP session. The way the RTSP protocol is designed to operate, it is always the RTSP client and not RTSP server that initiates the set up of such a session. Similar to SIP, RTSP session information is exchanged using the Session Description Protocol (SDP), which may be encapsulated in the RTSP protocol. Once the session is set up, multimedia may be streamed from the server to the client **11**, using the RTP protocol, wherein RTSP allows the client to control the streaming.

FIG. **4** depicts a schematic view of a system representing an exemplary embodiment according to the invention. In this embodiment a home located first terminal **12** comprises a SIP client **13**, which is capable to set up a SIP session **14** with an SIP-RTSP gateway **15**. The SIP-RTSP gateway may be located in a device that may also comprise the second terminal **16** at the TV studio. The second terminal **16** comprises a RTSP client.

Towards the (originating) SIP client of the first terminal at the user side, the gateway acts as a (terminating) SIP client. The gateway confirms that it is able to receive the multimedia session from the first terminal and informs the first terminal at the user side on the session details and the RTP port number. This first multimedia stream session information may be exchanged using the SDP protocol, which may be encapsulated in the SIP messages.

The gateway may further be capable of resolving an identifier received from the first terminal, used to identify the second terminal, into a network address of the second terminal. The resolution process may be performed by the gateway or under the control of the gateway by another module. The identifier may already be a suitable network address of the second terminal, in case of which the resolving is not required.

In response to the initiation of the exchange of first multimedia stream session information, after being provided with a suitable network address, the gateway may send a trigger message to the second terminal. The trigger message instructs the RTSP client to initiate an RTSP session with the gateway. The gateway does not have to send the trigger itself, but may also instruct another module (such as a Short Message Service Center SMSC) to do so on its behalf.

Hence, towards the second terminal comprising the RTSP client **18**, the SIP-RTSP gateway acts as an RTSP server, thereby allowing the RTSP client to have RTSP session control over the RTP stream **19**, which is transmitted from the first terminal (SIP client) and received as an associated second multimedia stream at the second terminal (comprising the RTSP client).

The first multimedia stream may be the same multimedia stream as the second associated multimedia stream. In that case content is streamed directly from the first to the second terminal. The transmitted first stream is not buffered under the control of a RTSP server before being further transmitted as a second associated stream to the second terminal. This has the advantage that the content is being presented in 'live modus' to the second terminal. In this modus the trickplay functionalities (pause, fast forward etc.) of the RTSP client can not be used to control the stream.

FIG. **5**(*a*) illustrates an exemplary embodiment of the flow of information between the SIP client (comprised in the first terminal), the SIP-RTSP gateway and the RTSP client (comprised in the second terminal). In a first step **20** the exchange of first multimedia stream session information (SIP session) is initiated by the SIP client in the first terminal, which sends an SIP INVITE to the gateway indicating that it wants to stream a first multimedia stream to the second terminal. In further variants, the first terminal may use another protocol to initiate the exchange of first multimedia stream session information, such as H.323 or MPEG-4 Delivery Multimedia Integration Framework (DMIF) Default Signaling Protocol (DDSP).

In a second step **21** the gateway accepts the invitation and in response, provides the second terminal with a trigger to start an RTSP session with the SIP-RTSP gateway. Optionally, the gateway may first need to resolve an identifier of the second terminal transmitted by the SIP client in the first terminal, before it provides the trigger. The resolving process to obtain the network address of the second terminal may include a DNS, ENUM or other database query.

The gateway may add extra information to the trigger, such as a gateway generated identifier, that can be used by the gateway to associate the incoming RTSP request from the second terminal (the RTSP request being part of the exchange of second multimedia stream session information) with the SIP session. The information in the trigger may be included in an RTSP URI.

The trigger may have the form of a trigger message, for example a SIP content indirection request (RFC 4483), a Short Message Service (SMS) message, or an Unstructured Supplementary Service Data (USSD) message. Further, the trigger message may be passed to the RTSP client using a proprietary application programming interface (API) or a control interface on the RTSP client, for example a Web Service interface using SOAP, a Remote Procedure Call (RPC), or a telnet interface. Such interfaces may simulate a "manual user input" requesting a multimedia stream.

The incoming trigger message may be interpreted by the trigger protocol stack (for example an SOAP stack or RPC stack) which may be configured to instruct the RTSP client to request a multimedia stream or instruct another module to do so. Alternatively, the second terminal may use another protocol to request a multimedia stream, such as Microsoft Media Server protocol MMS, or Hypertext Transfer Protocol HTTP.

Thereafter, in a third step **22**, the gateway handles the exchange of second multimedia session information with the

RTSP client comprised in the second terminal, through transmitting the SDP information to the RTSP client and retrieving from the RTSP client the correct RTP port to which the RTP stream should be sent to. During this exchange the gateway give instructions to the RTSP client, including for example the RTP port number that should be used for receiving the (second associated) multimedia stream or for example a multicast- or other address where the stream can be retrieved from.

In a fourth step **23**, the gateway confirms the SIP session to the SIP client using a SIP 200 OK message and provides the SIP client with the RTP port number, to be used for transmitting the first multimedia stream and confirms the SDP information. Finally, in the fifth and last step **24**, the first terminal starts streaming the RTP multimedia stream to the second terminal.

The termination of the combined SIP/RTSP session (not depicted in FIG. **5**(*a*)) may be handled in a similar way as the initiation of such session described above. If the SIP client (of the first terminal) indicates that it wants to terminate the session, the gateway may translate an SIP BYE message into an RTSP REDIRECT message (without location header). The RTSP REDIRECT message can be found in a draft of an updated RTSP version (see Internet draft RFC 2326 version 16 of the Real Time Streaming Protocol 2.0 dated 19 Nov. 2007 by Schulzrinne et al). If the RTSP client (of the second terminal) indicates that it wants to terminate the session, the gateway translates an RTSP TEARDOWN message into a SIP BYE message (which is then subsequently to be sent to the SIP client comprised in the first terminal)

In a further embodiment the streaming of multimedia may be first initiated by the gateway. In that case the gateway provides the RTSP client comprised in the second terminal with the trigger message and invites through its own SIP client functionality the SIP client of the first terminal to set up a SIP session. The flow of information between the SIP client, the gateway and the RTSP client is schematically depicted in FIG. **5**(*b*).

In yet a further embodiment the gateway may be located in the first terminal. In that case the first protocol, used for the exchange of first multimedia stream session information may just be an internal protocol. The session may then be triggered by a stimulus of the user interface of the first terminal. This scheme is schematically depicted in FIG. **5**(*c*), wherein the first terminal may be comprised in a mobile device. Alternatively, the stimulus received by the first terminal may also come from an external source. In that case for example an SMS message received by the mobile device may trigger a session.

FIG. **6** depicts an implementation of the invention in an IMS-based IPTV architecture as defined by ETSI TISPAN. The architecture may for example be used for a scenario, wherein a first subscriber of an IMS based (user-generated) content service, commanding a first terminal (UE1 **601**), wants to stream his multimedia stream to a second subscriber, commanding a second terminal (UE2 **602**).

In this embodiment the gateway according to the invention is of the distributed type, wherein the exchange of first multimedia stream session information with the UE1 is typically handled by the Service Control Function (SCF **603**) and the exchange of second multimedia stream session information with the UE2 is handled by the Media Function (MF **605**). The provisioning of the trigger to the UE2 may be controlled and/or executed by the SCF **603**. In a variant, the Media Control Function **606** in the MF can send the trigger and instruct the Media Delivery Function MDF **607** on how to deliver the multimedia stream. In this example the first subscriber uses SIP to setup a multimedia session for transmitting a first multimedia stream, whereas the second subscriber uses RTSP to receive the associated second multimedia stream.

In order for the first subscriber to invite the second subscriber to receive the multimedia stream the following steps illustrated by the flow diagram of FIG. **7** are performed. In a first step **701** a first subscriber (using UE1 **601**) may want to share his multimedia stream with a second subscriber (using UE2 **602**) by setting up a SIP session with the Service Control Function SCF **603** through the IMS core **604**. The SIP INVITE request may comprise a list of subscriber terminal addresses, for example using an URI-contained list, or a list may be sent to the Service Control Function (SCF) outside the session, for example using XML Configuration Access Protocol XCAP, of which an identifier may be included in the SIP INVITE request. Alternatively, in case of a service such as Community (closed user group) TV, in which a large number of subscribers need to be addressed at once, the SIP INVITE request may just comprise a reference to the community, in the form of a Community (closed user group) Identifier, which will need to be resolved before providing multiple triggers to all community subscribers.

In a second step **702** the SCF may act as a back-to-back user agent (B2BUA) and sends a session request to the Media Control Function MCF **606**, possibly through the IMS core. The session request to the MCF includes information on where to receive the multimedia stream and how to distribute it. Alternatively, the SCF may use another protocol towards the MCF such as MEGACO/H.248 or SOAP.

In a third step the MCF may send multimedia stream information to the MDF **607** to setup an RTP port and address for the first multimedia stream and associate it with a RTSP URI. The MCF may for example use SIP or MEGACO/H.248 to exchange multimedia stream information.

In a fourth step **704** the MCF response to the SCF may comprise information such as the address or RTP port, where the first multimedia stream should be transmitted to, and/or the RTSP URI to be used by the UE2 for contacting the RTSP server functionality of the gateway.

In a fifth step **705** the SCF sends a response back to the UE1, during the exchange of first multimedia stream session information, using its SIP client functionality

In a sixth step **706** UE1 **601** transmits the multimedia stream in the manner and/or to the location indicated by the MCF.

In a seventh step **707** the SCF uses the information from the MCF to provide a trigger to the UE2. The trigger may be a SIP content indirection request. The request may include the RTSP URL provided by the MF or another indication for the UE2 how to contact the gateway. The trigger may also be sent within an existing SIP session with the UE2, or by using a SIP REFER request.

In a eighth step **708** the invited UE2 **602** initiates, in response to the SIP content indirection request, a RTSP session with the MDF (exchange of second multimedia stream session information, **708** in FIG. **7**) for receive the multimedia content (second associated multimedia stream **709**). The RTSP URI may include an identifier provided in the trigger message for the MDF to associate the RTSP session with the SIP session. The RTSP session (second associated multimedia stream) may be unicast or multicast. When multicast is used the MF distributes the incoming

(unicast) first multimedia stream of UE1 as a multicast stream. UE2 then sends, in response to the established RTSP session, an IGMP request to receive the second associated multimedia stream.

In a ninth step the MF may send SIP NOTIFY messages to the SCF to keep the SCF informed of the status of the RTSP session, if the SCF indicated interest by sending a SIP SUBSCRIBE message to the MF (not shown in FIG. **7**).

The invention is not limited to the embodiments described above, which may be varied within the scope of the accompanying claims. For instance, the term studio should not be interpreted as only meaning a professional broadcast studio. A studio within the meaning of this invention relates to all systems which could provide multimedia functionality similar to a studio, e.g. a personal computer system or another multimedia system which is capable of streaming live content to a user at a home location and in response receiving user-generated content from the user.

The invention claimed is:

1. A method, wherein a gateway is capable of communicating with a first terminal and a second terminal, the method comprising:

the gateway or the first terminal using a first protocol to exchange first multimedia session information between the first terminal and the gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

the second terminal using a second protocol to receive a trigger provided by the gateway or first terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

in response to receiving the trigger, the second terminal using a third protocol to initiate the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

the second terminal receiving the second media stream, wherein the second media stream is associated with the first media stream.

2. The method according to claim **1**, wherein the exchange of the first multimedia session information comprises:

the gateway providing to the first terminal at least part of the second multimedia session information.

3. The method according to claim **1**, wherein the exchange of the second multimedia session information comprises:

the gateway providing to the second terminal at least part of the first multimedia session information.

4. The method according to claim **1**, wherein the exchange of the first multimedia session information comprises:

the gateway receiving, from the first terminal, an identifier of the second terminal.

5. The method according to claim **4**, further comprising:

before using the second protocol to provide the trigger to the second terminal, the gateway resolving the identifier of the second terminal into a network address of the second terminal.

6. The method according to claim **5**, wherein providing the trigger to the second terminal comprises the gateway transmitting the trigger to the resolved network address of the second terminal.

7. The method of claim **1**, wherein the third protocol is different from the second protocol.

8. The method of claim **1**, wherein the first multimedia stream is the second multimedia stream.

9. The method of claim **1**, wherein the first protocol is a peer-to-peer protocol.

10. The method of claim **1**, wherein the third protocol is a client-server protocol, and wherein the second receiving terminal has client capabilities of the third protocol and not server capabilities of the third protocol.

11. The method of claim **1**, wherein the trigger comprises a network address of the gateway.

12. The method of claim **11**, wherein the network address is a URI or a URI reference.

13. The method of claim **1**, wherein the first protocol and the second protocol are identical.

14. The method of claim **13**, wherein the first protocol and the second protocol are the Session Initiation Protocol (SIP).

15. The method of claim **1**, wherein the gateway is configured to associate the first multimedia session information with the second multimedia session information.

16. An article of manufacture including a non-transitory computer-readable medium, having stored thereon software instructions that, if executed by a computing device, cause the computing device to perform operations comprising:

using a first protocol to initiate an exchange of first multimedia session information between a first terminal and a gateway, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media;

using a second protocol to provide a trigger to a second terminal, wherein the trigger is to initiate an exchange of second multimedia session information between the gateway and the second terminal, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream;

using a third protocol to conduct the exchange of the second multimedia session information between the gateway and the second terminal, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates; and

using the first protocol to transmit a response to the first terminal, wherein the response causes the first terminal to begin transmission of the first media stream from the first terminal, wherein the second media stream to the second terminal is associated with the first media stream from the first terminal.

17. A gateway comprising:

a communication interface; and

memory that stores software instructions that, when executed by the gateway, cause the gateway to:

(i) exchange first multimedia session information with a first terminal using a first protocol, wherein the exchange of the first multimedia session information sets up a first media stream from the first terminal, and wherein the first multimedia session information includes a type of media,

(ii) provide a trigger to a second terminal, wherein the trigger is provided using a second protocol, in response to which the second terminal is able to initiate exchange of second multimedia session information with the gateway, and wherein the trigger serves to inform the second terminal of availability of a new multimedia stream, and

(iii) exchange second multimedia session information with the second terminal, using a third protocol, wherein the third protocol is different from the first protocol, wherein the exchange of the second multimedia session information sets up a second media stream to the second terminal in which the second terminal participates.

18. The gateway of claim **17**, wherein the gateway is configured to connect to a first terminal supporting a first protocol and to a second terminal supporting a second protocol,

wherein the first protocol is Session Initiation Protocol (SIP) and the second protocol is Real Time Streaming Protocol (RTSP),

wherein the first terminal is an originating SIP client of a user at a user side,

wherein the gateway acts as a terminating SIP client,

wherein the gateway is configured to confirm that the gateway is able to receive a multimedia session from the user and to provide the first terminal with multimedia session information,

wherein the second terminal is an RTSP client,

wherein the gateway acts as an RTSP server on behalf of the user,

wherein the second terminal uses RTSP for session control, and

wherein the gateway is configured to inform the second terminal that an incoming session is pending and notify the RTSP client to connect to an RTSP server function of the gateway.

19. The gateway of claim **17**, wherein the gateway is configured to transmit a notification message to the second terminal in response to an invitation of the first terminal, in order to activate the second terminal to set up a second multimedia session between the second terminal and the gateway.

20. The gateway of claim **17**, wherein the gateway is embedded in an IP Multi-Media Subsystem (IMS) network architecture, wherein the first protocol is Session Initiation Protocol (SIP), wherein the third protocol is Real Time Streaming Protocol (RTSP), the IMS network architecture comprising a service-control-function component and a media-function component, wherein the memory of the gateway is distributed in the IMS network architecture, such that:

exchanging the first multimedia session information is handled by the service-control-function component within the IMS network architecture;

triggering the second terminal is controlled by the service-control-function component within the IMS network architecture; and

exchanging second multimedia session information is handled by the media-function component within the IMS network architecture.

21. The gateway of claim **17**, wherein the gateway is configured to associate the first multimedia session information and the second multimedia session information with each other.

22. The gateway of claim **17**, wherein the gateway further comprises Session Initiation Protocol (SIP) client functionality and Real Time Streaming Protocol (RTSP) server functionality.

* * * * *

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REISSUE APPLICATION DECLARATION BY THE INVENTOR	Docket Number (Optional) 10-406-CON-REI

I hereby declare that:
Each inventor's residence and mailing address are stated below next to their name.
I believe I am the original inventor or an original joint inventor of the subject matter which is described and claimed in patent number 9,654,330, granted May 16 2017 and for which a reissue patent is sought on the invention titled METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM,

the specification of which

☑ is attached hereto.

☐ was filed on _____ as reissue application number _____.

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

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.

I believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)

☐ by reason of a defective specification or drawing.

☑ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☐ by reason of other errors.

At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, a claim that the application seeks to broaden must be identified:

This is a broadening reissue application. Applicant did not claim all subject matter to which Applicant was entitled.

The submitted claims include, in addition to the original issued claims, new claims directed to a new claim category. Specifically, new claims 23-27 are directed to a "terminal," which is a new type of apparatus not previously claimed in the issued patent. The totality of the claims of this reissue application are therefore broader that the totality of the claims of the issued patent.

This collection of information is required by 37 CFR 1.175. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 30 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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(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional): 10-406-CON-REI

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☑ The address associated with Customer Number: 20306

OR

☐ Firm or Individual Name					
Address					
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Legal name of sole or first inventor (*e.g.*, Given Name (first and middle (if any) and Family Name or Surname)

Hans Maarten Stokking

Inventor's Signature		Date (Optional): 9-5-2019
Residence: City: The Hague	State	Country: NL

Mailing Address

Leyweg 1298N

City	State	Zip	Country
The Hague		NL-2545 HK	NL

Additional joint inventors are named on the 1 supplemental sheet(s) PTO/AIA/10 attached hereto

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SUPPLEMENTAL SHEET FOR DECLARATION | **ADDITIONAL INVENTOR(S)** Supplemental Sheet (for PTO/AIA/08,09) Page 2 of 2

Legal Name of Additional Joint Inventor, if any:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

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Inventor's Signature: MOvan Deventer — Date (Optional): 13-05-2019

Residence: City: Leidschendam — State: — Country: NL

Mailing Address: Hannie Schaftstraat 62

City: Leidschendam — State: — Zip: NL-2264 D — Country: NL

Legal Name of Additional Joint Inventor, if any:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Fabian Arthur Walraven

Inventor's Signature: — Date (Optional):

Residence: City: Groningen — State: — Country: NL

Mailing Address: Kruitgracht 6B

City: Groningen — State: — Zip: NL-9711 VN — Country: NL

Legal Name of Additional Joint Inventor, if any:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Omar Aziz Niamut

Inventor's Signature: — Date (Optional): 10-05-2019

Residence: City: Vlaardingen — State: — Country: NL

Mailing Address: ~~Vaartweg 104b~~ Eleonorastraat 33

City: Vlaardingen — State: — Zip: NL-3135 PA — Country: NL

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 21 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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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.

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REISSUE APPLICATION DECLARATION BY THE INVENTOR	Docket Number (Optional) 10-406-CON-REI

I hereby declare that:
Each inventor's residence and mailing address are stated below next to their name.
I believe I am the original inventor or an original joint inventor of the subject matter which is described and claimed in patent number 9,654,330, granted May 16, 2017, and for which a reissue patent is sought on the invention titled METHOD AND SYSTEM FOR TRANSMITTING A MULTIMEDIA STREAM,

the specification of which

☑ is attached hereto.

☐ was filed on _____ as reissue application number _____.

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

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☑ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☐ by reason of other errors.

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Legal name of sole or first inventor (*E.g.*, Given Name (first and middle (if any) and Family Name or Surname)

Hans Maarten Stokking

Inventor's Signature		Date (Optional)	
Residence: City The Hague	State	Country NL	
Mailing Address Leyweg 1298N			
City The Hague	State	Zip NL-2545 HK	Country NL

[ ] Additional joint inventors are named on the 1 supplemental sheet(s) PTO/AIA/10 attached hereto.

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SUPPLEMENTAL SHEET FOR DECLARATION | **ADDITIONAL INVENTOR(S)**
Supplemental Sheet (for PTO/AIA/68,09) Page 2 of 2

Legal Name of Additional Joint Inventor, if any:
(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)
Mattijs Oskar Van Deventer

Inventor's Signature | Date (Optional)

Residence: City: Leidschendam | State | Country: NL

Mailing Address: Hannie Schaftstraat 62

City: Leidschendam | State | Zip: NL-2264 D | Country: NL

Legal Name of Additional Joint Inventor, if any:
(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)
Fabian Arthur Walraven

Inventor's Signature | Date (Optional): 13-05-2019

Residence: City: Groningen | State | Country: NL

Mailing Address: Kruitgracht 6B

City: Groningen | State | Zip: NL-9711 VN | Country: NL

Legal Name of Additional Joint Inventor, if any:
(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)
Omar Aziz Niamut

Inventor's Signature | Date (Optional)

Residence: City: Vlaardingen | State | Country: NL

Mailing Address: Vaartweg 104b

City: Vlaardingen | State | Zip: NL-3131 H | Country: NL

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