

US00RE44067E

(19) **United States**
(12) **Reissued Patent**
Lee et al.

(10) **Patent Number:** **US RE44,067 E**
(45) **Date of Reissued Patent:** ***Mar. 12, 2013**

(54) **METHOD AND COMMUNICATION SYSTEM FOR IDENTIFYING CALLING/CALLED PARTY**

(58) **Field of Classification Search** 348/14.01, 348/51, 14.12; 358/1.14, 400, 405; 379/52, 379/88.19, 93.09, 100.16, 142.17, 88.13, 379/142.01; 455/461, 550.1, 414.1, 415, 455/556.1; 715/706, 838
See application file for complete search history.

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(56) **References Cited**

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U.S. PATENT DOCUMENTS

(*) Notice: This patent is subject to a terminal disclaimer.

4,533,943 A	8/1985	Poirier
4,715,059 A	12/1987	Cooper-Hart et al.
4,943,994 A	7/1990	Ohtsuka et al.
4,962,521 A	10/1990	Komatsu et al.
4,995,073 A *	2/1991	Okata et al. 379/93.09
5,018,186 A	5/1991	Kimura et al.
5,042,061 A	8/1991	Kaneko et al.
5,073,927 A	12/1991	Grube
5,146,349 A	9/1992	Mori

(21) Appl. No.: **12/859,216**

(22) Filed: **Aug. 18, 2010**
(Under 37 CFR 1.47)

(Continued)

Related U.S. Patent Documents

Reissue of:

(64) Patent No.: **7,499,528**
Issued: **Mar. 3, 2009**
Appl. No.: **11/069,384**
Filed: **Feb. 28, 2005**

FOREIGN PATENT DOCUMENTS

CN	1413409 A	4/2003
EP	0741484	11/1996

(Continued)

(30) **Foreign Application Priority Data**

Mar. 2, 2004 (KR) 10-2004-0013939

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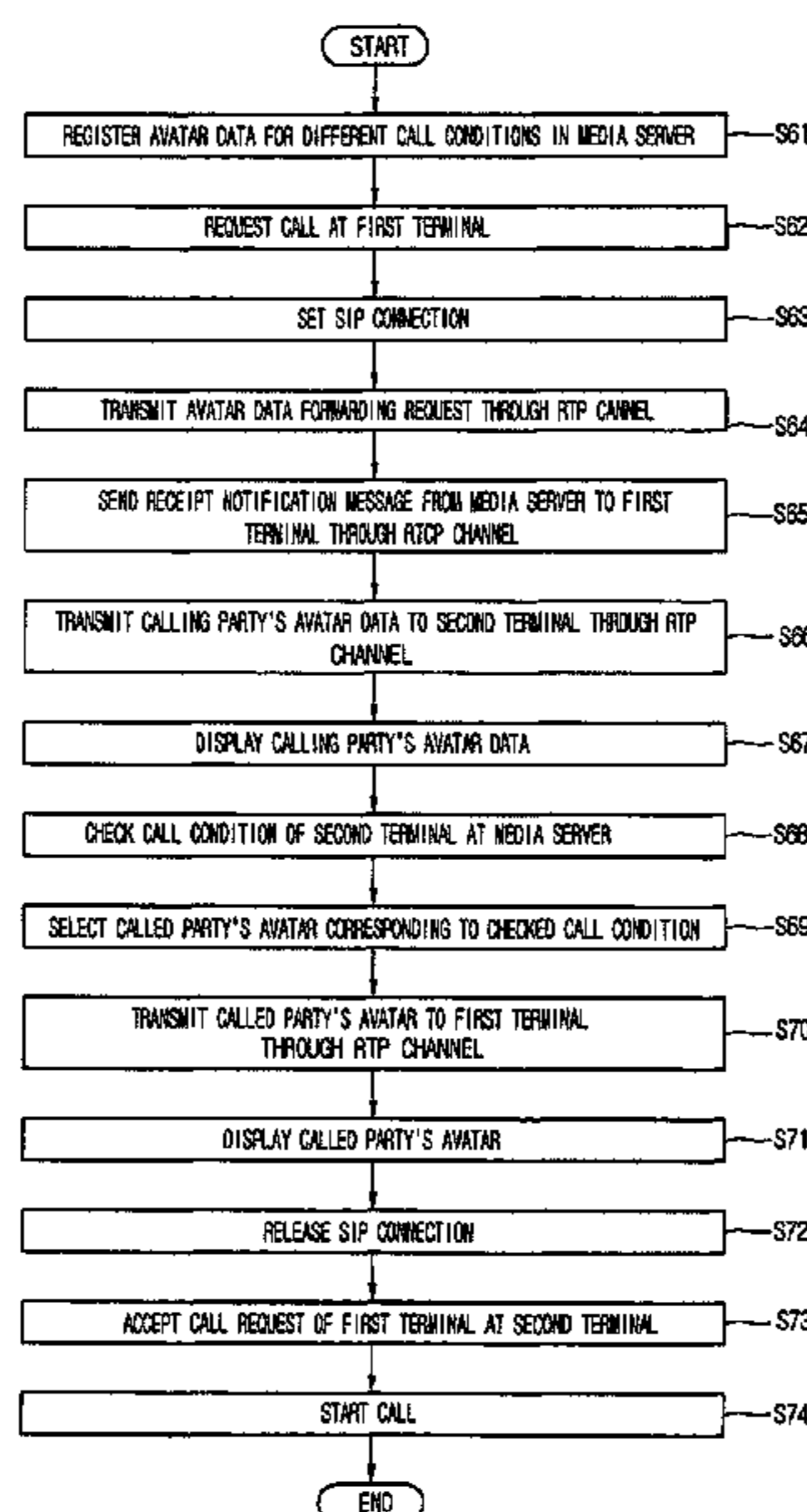
(51) **Int. Cl.**
H04M 1/64 (2006.01)
H04M 11/00 (2006.01)
G06F 3/00 (2006.01)
H04M 3/42 (2006.01)
H04Q 11/04 (2006.01)

(57) **ABSTRACT**

(52) **U.S. Cl.** **379/88.19**; 348/14.01; 348/14.02; 348/14.12; 348/51; 358/1.14; 358/400; 358/405; 379/52; 379/88.13; 379/93.09; 379/100.16; 379/142.17; 455/414.1; 455/415; 455/461; 455/550.1; 455/556.1; 715/706; 715/838

A method and communication system is provided to identify a calling/called party when the call is being set up but before the call is answered. In the method, a first terminal and a second terminal are respectively provided with opposing terminal's image data before the call is answered. The image data of the first and second terminals can be registered in a media server disposed between the first and second terminals, and the image data can be transmitted between the first terminal and the media server and between the second terminal and the media server in accordance with an SIP protocol.

16 Claims, 3 Drawing Sheets



US RE44,067 E

U.S. PATENT DOCUMENTS

5,412,418 A 5/1995 Nishimura et al.
 5,586,171 A 12/1996 McAllister et al.
 5,606,365 A 2/1997 Maurinus et al.
 5,608,788 A 3/1997 Demlow et al.
 5,640,195 A 6/1997 Chida
 5,715,301 A * 2/1998 Terasaki et al. 379/100.16
 H1714 H 3/1998 Partridge, III
 5,771,065 A 6/1998 Hijikata et al.
 5,818,606 A * 10/1998 Muramatsu et al. 358/405
 5,875,239 A 2/1999 Koralewski et al.
 5,890,071 A 3/1999 Shimanuki
 5,898,824 A 4/1999 Kato et al.
 5,907,604 A 5/1999 Hsu
 5,930,818 A 7/1999 Suu et al.
 5,999,599 A 12/1999 Shaffer et al.
 6,167,469 A 12/2000 Safai et al.
 6,185,433 B1 2/2001 Lele et al.
 6,192,257 B1 2/2001 Ray
 6,198,738 B1 3/2001 Chang et al.
 6,226,367 B1 5/2001 Smith et al.
 6,243,448 B1 6/2001 Corbett et al.
 6,269,094 B1 7/2001 Lecomte et al.
 6,272,126 B1 8/2001 Strauss et al.
 6,509,924 B2 1/2003 Honguu et al.
 6,529,742 B1 3/2003 Yang
 6,600,508 B2 7/2003 Nakade et al.
 6,665,442 B2 12/2003 Sekiguchi et al.
 6,695,206 B2 2/2004 Ross
 6,810,115 B2 * 10/2004 Fukuda 379/142.01
 6,865,386 B2 * 3/2005 Aoyama et al. 455/415
 6,870,917 B2 3/2005 Chen et al.
 6,876,734 B1 4/2005 Summers et al.
 6,981,275 B1 12/2005 Maeda et al.
 6,990,480 B1 1/2006 Burt
 7,031,746 B2 4/2006 Na et al.
 7,065,197 B1 6/2006 Ramella-Pezza et al.
 7,085,253 B2 8/2006 Yang
 7,088,802 B2 8/2006 Light et al.
 7,091,974 B2 8/2006 Masera et al.
 7,092,735 B2 8/2006 Osann, Jr.
 7,113,577 B2 9/2006 Cook et al.
 7,127,271 B1 * 10/2006 Fujisaki 455/556.1
 7,130,296 B2 10/2006 McNiff et al.
 7,155,211 B2 12/2006 Mun et al.
 7,174,163 B2 2/2007 Aksu et al.
 7,177,627 B2 2/2007 Melaku et al.
 7,180,991 B2 2/2007 Dhara et al.
 7,239,338 B2 7/2007 Krisbergh et al.
 7,248,677 B2 7/2007 Randall et al.
 7,272,134 B2 9/2007 Iwama et al.
 7,272,419 B1 9/2007 Schutze et al.

7,301,661 B2 11/2007 Sagiya et al.
 7,313,227 B2 12/2007 Jones
 7,419,032 B2 9/2008 Yamakawa
 7,423,770 B2 * 9/2008 Ogura et al. 358/1.14
 7,443,416 B2 10/2008 Berenguer
 7,493,138 B2 * 2/2009 Nagatomo et al. 455/550.1
 7,499,528 B2 * 3/2009 Lee et al. 379/88.19
 7,523,086 B1 4/2009 Teague et al.
 7,536,178 B2 5/2009 Paik et al.
 7,543,246 B2 * 6/2009 Mifune 715/838
 7,576,770 B2 8/2009 Metzger et al.
 7,613,450 B2 * 11/2009 Krischker et al. 455/414.1
 7,623,186 B2 11/2009 Seong
 7,634,731 B2 * 12/2009 Lee 715/706
 7,643,168 B2 1/2010 Monroe
 7,643,619 B2 * 1/2010 Jung 379/52
 7,660,404 B2 2/2010 Min et al.
 7,738,886 B1 * 6/2010 Connolly et al. 455/461
 7,760,711 B1 7/2010 Kung et al.
 2003/0032413 A1 2/2003 Aksu et al.
 2003/0055981 A1 3/2003 Requena et al.
 2003/0095650 A1 * 5/2003 Mize 379/142.17
 2003/0103247 A1 6/2003 Masera et al.
 2003/0139172 A1 7/2003 Lampela et al.
 2003/0149641 A1 8/2003 Kouketsu et al.
 2004/0032503 A1 2/2004 Monden et al.
 2004/0055011 A1 3/2004 Bae et al.
 2004/0091090 A1 5/2004 Hong et al.
 2004/0101046 A1 5/2004 Yang et al.
 2004/0165703 A1 8/2004 Jones
 2004/0169759 A1 9/2004 Kikuchi
 2004/0209644 A1 10/2004 Chang et al.
 2005/0032507 A1 2/2005 Na et al.
 2005/0143053 A1 6/2005 Virtanen et al.
 2005/0146599 A1 * 7/2005 Whited et al. 348/14.01
 2005/0169446 A1 8/2005 Randall et al.
 2005/0195950 A1 * 9/2005 Lee et al. 379/88.19
 2006/0020991 A1 1/2006 Goto
 2006/0159247 A1 7/2006 Krembs
 2006/0258396 A1 11/2006 Matsuoka
 2006/0268349 A1 * 11/2006 Tamura 358/400
 2007/0091832 A1 4/2007 Lee
 2008/0045184 A1 2/2008 Randall et al.
 2011/0273540 A1 * 11/2011 Lee et al. 348/51

FOREIGN PATENT DOCUMENTS

EP 0741484 A2 11/1996
 WO WO 0217602 2/2002
 WO WO-0217602 A1 2/2002

* cited by examiner

Fig. 1

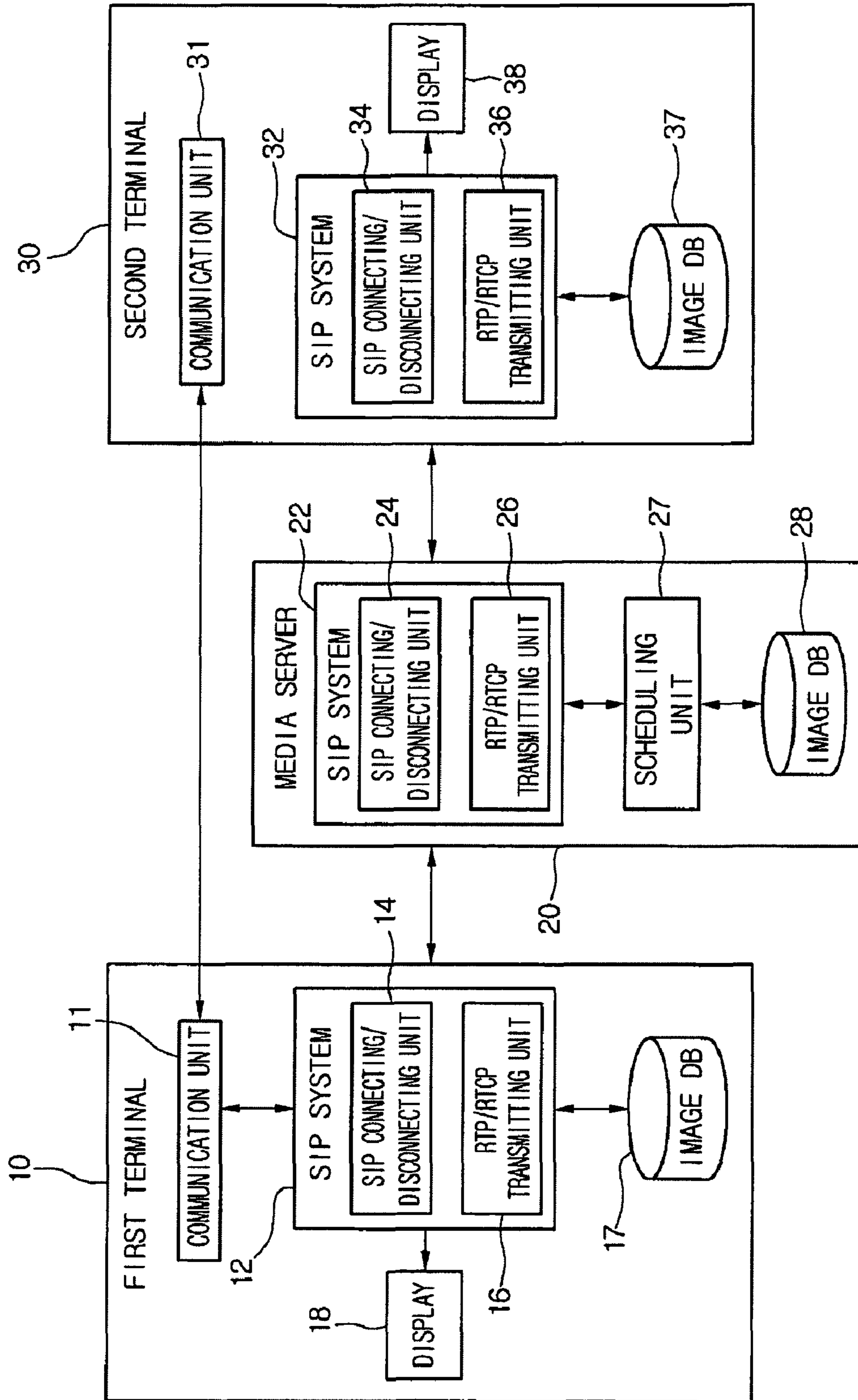


Fig.2

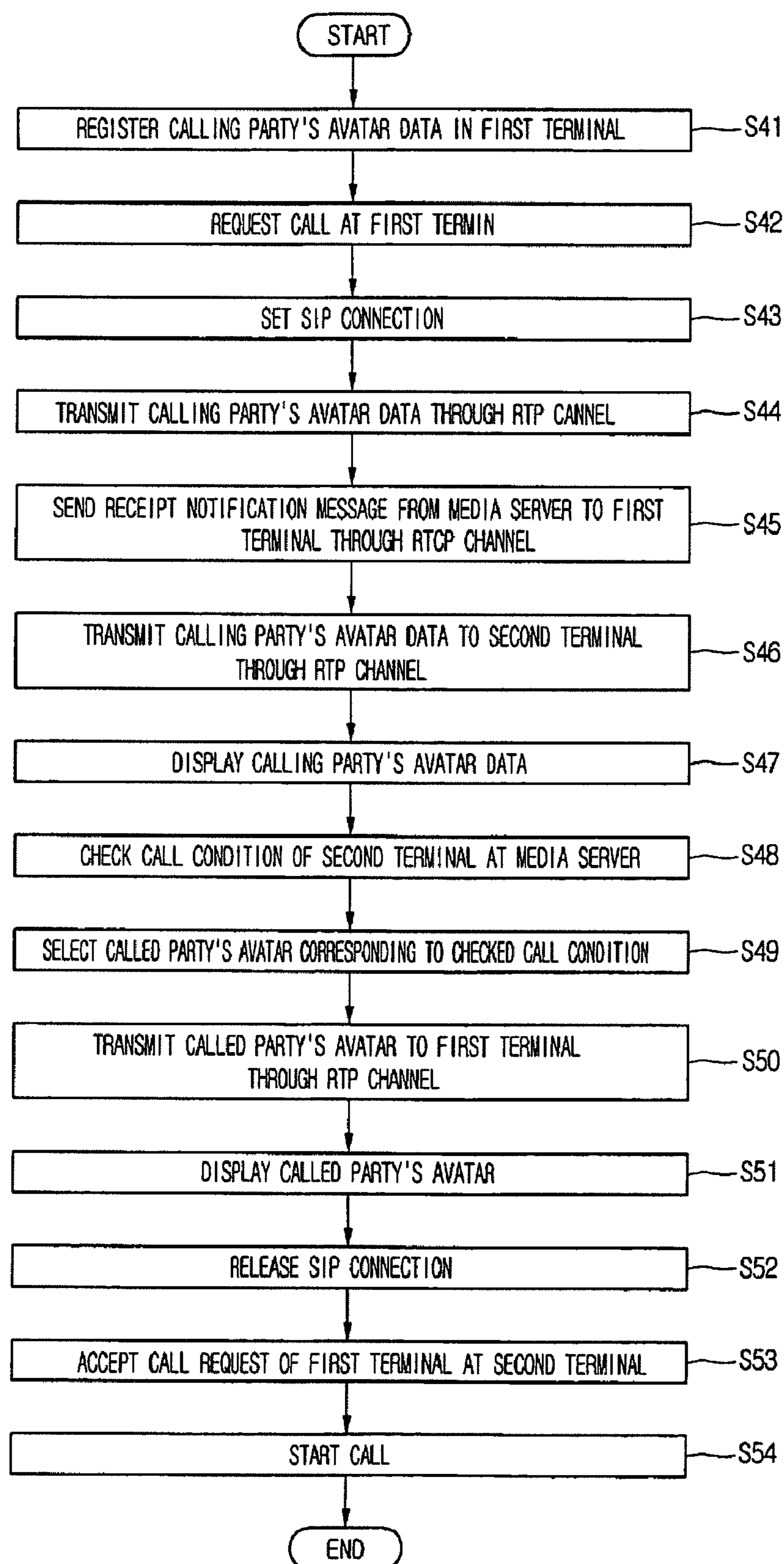
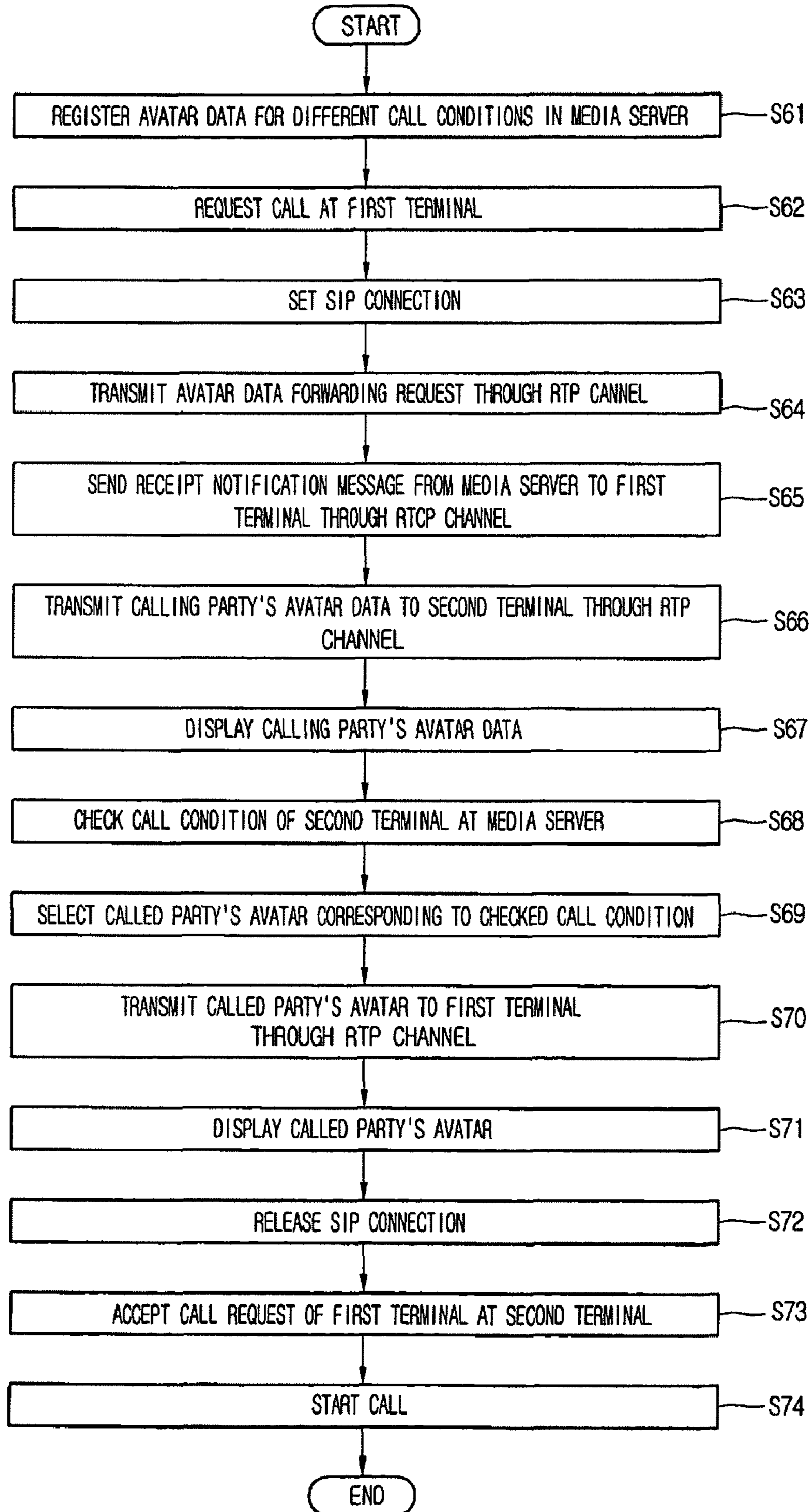


Fig.3



**METHOD AND COMMUNICATION SYSTEM
FOR IDENTIFYING CALLING/CALLED
PARTY**

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

This application is a Reissue Application of U.S. Pat. No. 7,499,528B2 issued on Mar. 3, 2009 which is incorporated by reference and which claims foreign priority benefits of Korean Patent Application No. 10-2004-0013939 filed Mar. 2, 2004 in Republic of Korea. Notice: More than one reissue application has been filed for the reissue of U.S. Pat. No. 7,499,528B2. The U.S. reissue applications are application Ser. No. 12/859,175 filed Aug. 18, 2010, application Ser. No. 12/859,201 filed Aug. 18, 2010, application Ser. No. 12/859,207 filed Aug. 18, 2010, application Ser. No. 12/859,216 filed Aug. 18, 2010, application Ser. No. 12/859,225 filed Aug. 18, 2010, and application Ser. No. 13/020,319 filed Feb. 3, 2011.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a communication system, and more particularly, to a method and communication system for identifying a calling/called party (sender/caller or recipient) before calling or answering.

2. Description of the Related Art

Various methods of identifying the calling/called party are being introduced.

There is a well-known method of transmitting the caller's phone number to the recipient's terminal during the ringing signal or when the call is being set up but before the call is answered, such that the recipient can see the caller's phone number on the terminal display. However, if the recipient does not know the phone number, the recipient cannot identify the caller.

In another method, caller's name, avatar/image as well as the caller's phone number, which are previously stored in the recipient's terminal, are displayed on the terminal display. However, the recipient cannot also identify the caller with this method when the caller's name and avatar/image are not stored in the recipient terminal.

SUMMARY OF THE INVENTION

Accordingly, the present invention is directed to a method and communication system for identifying a calling/called party that substantially obviates one or more problems due to limitations and disadvantages of the related art.

An object of the present invention is to provide a method and communication system for identifying a calling/called party, in which image data of a calling party can be transmitted to a called party without adding additional software and hardware, thereby decreasing manufacturing and operating costs.

Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objectives and other advantages of the invention may be realized and

attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

To achieve these objects and other advantages and in accordance with the purpose of the invention, as embodied and broadly described herein, a method of identifying a calling/called party includes the steps of: registering image data of a calling party in a first terminal; transmitting the image data and a call request of the first terminal to a second terminal via a media server; and displaying the image data of the calling party on the second terminal.

In another aspect of the present invention, there is provided a method of identifying a calling/called party, including the steps of: registering image data of calling party and called party in a media server in accordance with a call condition; transmitting a call request and an image data forwarding request of a first terminal to the media server; transmitting the registered image data of the calling party from the media server to a second terminal in response to the image data forwarding request; and displaying the image data of the calling party on the second terminal.

In a further another aspect of the present invention, there is provided a communication system for identifying a calling/called party, including: a first terminal having a communication unit for requesting a call, an SIP system for transmitting image data of a calling party and receiving image data of a called party, a display for displaying the image data of the called party, and an image database for registering the image data of the calling party; a media server having an SIP system for transmitting the image data of the calling party received from the first terminal to the called party and transmitting the image data of the called party to the first terminal, an image database for registering the image data of the called party in accordance with a call condition, and means for selecting one of the image data of the called party corresponding to the call condition; and a second terminal having a communication unit for responding to the call requested from the first terminal to open a communication channel with the first terminal, an SIP system for receiving the image data of the calling party from the first terminal, and a display for displaying the image data of the calling party.

In a still further another aspect of the present invention, there is provided a communication system for identifying a calling/called party, including: a first terminal having a communication unit for requesting a call, an SIP system for transmitting an image data forwarding request of a calling party and receiving image data of a called party, and a display for displaying the image data of the called party; a media server having an SIP system for transmitting the image data of the calling party to the called party in response to the image data forwarding request and transmitting the image data of the called party to the first terminal, an image database for registering the image data in accordance with a call condition, and means for selecting one of the image data of the called party corresponding to the call condition; and a second terminal having a communication unit for responding to the call requested from the first terminal to open a communication channel with the first terminal, an SIP system for receiving the image data of the calling party from the first terminal, and a display for displaying the image data of the calling party.

It is to be understood that both the foregoing general description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention and are incor-

porated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

FIG. 1 is a block diagram of a communication system according to a preferred embodiment of the present invention;

FIG. 2 is a flowchart showing a method of transmitting an avatar data registered in a terminal according to a preferred embodiment of the present invention; and

FIG. 3 is a flowchart showing a method of transmitting an avatar data registered in a media server according to a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings to refer to the same or like parts.

FIG. 1 is a block diagram of a communication system according to a preferred embodiment of the present invention;

Referring to FIG. 1, a communication system includes: a first and second terminals 10 and 30 for making a call and answering the call; and a media server 20 for transmitting image data of the calling party to the called party, transmitting image data of the called party to the calling party, and storing the image data.

The image data can be any kind of picture or character, such as an avatar, a still picture, a moving picture, and a text so long as the calling party and called party can be identified with the image data. The avatar is an image of a person used to represent somebody, and it is available from the Internet. The still picture and moving picture can be stored using a camera of a terminal. The text can be used to identify the calling party or the called party instead of the avatar or the pictures. For example, the text may include personal information such as physical and characteristic information.

Both the first terminal 10 and the second terminal 30 are capable of making and answering a call. Therefore, the first terminal 10 may be a calling terminal and the second terminal 30 answering terminal, and vice versa.

In the embodiments of the present invention, the first terminal 10 is illustrated as a calling terminal and the second terminal 30 is illustrated as an answering terminal.

The elements of the first terminal 10 and the second terminal are similar. That is, the first and second terminals 10 and 30 may include communication units 11 and 31, session initiation protocol (SIP) systems 12 and 32, image databases 17 and 37, and displays 18 and 38, respectively.

Each of the communication units 11 and 31 is capable of requesting a call and accepting a call request. For example, when the calling party requests a call with the communication unit 11 of the first terminal 10, the communication unit 31 of the second terminal 30 receives the requested call and generates a ringing signal or activates a vibration mechanism for the called party. If the called party accepts the requested call, the communication unit 31 sends a call-accepting message to the communication unit 11 to open a communication channel between the first terminal 10 and second terminal 30. That is, the communication units 11 and 31 are provided to request a call, accept the call, and open/close the communication channel.

A base station, a mobile switching center, and other stations (not shown in FIG. 1) may be located between the communication unit 11 and the communication unit 31 for the communication therebetween. The call requested at the com-

munication unit 11 may be transmitted to the communication unit 31 via the base station, the mobile switching center, and other stations. Also, the call-accepting message at the communication unit 31 may be transmitted to the communication unit 11 via the base station, the mobile switching center, and other stations.

The SIP systems 12 and 32 set and release SIP channel connections. Also, the SIP systems 12 and 32 send data to the other locations and receive receipt notification messages from the other locations. For this purpose, the SIP systems 12 and 32 may include SIP connection setup/release units 14 and 34, and real time transport protocol/real time control protocol (RTP/RTCP) transmitting units 16 and 36, respectively.

The SIP connection setup/release units 14 and 34 are provided to set SIP channel connections between the first terminal 10 and the media server 20 and between the second terminal 30 and the media server 20 before opening RTP/RTCP channels therebetween. That is, the RTP/RTCP channels are opened after the SIP channel connections are set.

Therefore, the first terminal 10 can transmit RTP data (e.g., avatar data of the calling party) to the media server 20, and the second terminal 30 can receive the avatar data of the calling party from the media server 20. Also, the first terminal 10 can receive a receipt notification message (e.g., a BYE message) from the media server 20 after transmitting the avatar data of the calling party to the media server 20, and the media server 20 can receive a receipt notification message from the second terminal 30 after transmitting the avatar data of the calling party to the second terminal 30.

After this communication operation, the SIP connection setup/release units 14 and 34 release the SIP channel connections.

Preferably, the SIP systems 12 and 32 operate in association with the communication units 11 and 31. That is, the SIP system 12 operates when the communication unit 11 sends the call request to the communication unit 31. Also, the SIP system 32 operates to receive the avatar data of the calling party from the media server 20 when the communication unit 31 receives the call request.

The SIP system 12 operates at the same time when the communication unit 11 sends the call request. Foremost, the SIP connection setup/release unit 14 of the SIP system 12 sets the SIP channel connection to connect the first terminal 10 with the media server 20.

Then, the RTP/RTCP transmitting unit 16 transmits the avatar data according to the following ways:

In one way, the avatar data registered in the first terminal 10 are transmitted to the second terminal 30 through the media server 20 in accordance with the RTP protocol.

In another way, the avatar data of the calling party are previously registered in the media server 20, and the media server 20 transmits the avatar data to the called party in accordance with the RTP protocol when requested to send the avatar data to the called party.

The former will now be more fully described and the latter will be described later in association with the media server 20.

The avatar data may be registered in the image database 17 of the first terminal 10. It will be apparent to those of skill in the art that the avatar data include still picture data, moving picture data, text data, etc., as well as the avatar data. Meanwhile, the image database 37 of the second terminal 30 is not necessary in this way because the avatar data of the called party are already registered in the media server 20.

Further, another avatar data of another called party may be registered in the image database 17 if the first terminal 10 have requested a call at least one time to the another called party.

The RTP/RTCP transmitting unit **16** reads the avatar data of the calling party from the image database **17** and transmits the avatar data to the media server **20** through the RTP channel. The media server **20** transmits the received avatar data to the second terminal **30** for displaying the avatar data on the display **38** of the second terminal **30**.

Herein, the media server **20** sends a receipt notification message (e.g., a BYE message) to the first terminal **10** through the RTCP channel the time when the media server **20** receives the avatar data of the calling party from the first terminal **10**. Therefore, the first terminal **10** can be informed that the avatar data are successfully transmitted to the media server **20**.

When the avatar data of the calling party are displayed on the display **38** of the second terminal **30**, the display **18** of the first terminal **10** displays the avatar data of the called party received from the media server **20**.

The display of avatar data of the called party on the display **18** of the first terminal **10** will be more fully described later when the overall operation of the communication system of the present invention is described.

The second terminal **30** has the similar configuration to the first terminal **10**. Since the second terminal **30** is illustrated as an answering terminal, the avatar data of the calling party are displayed on the display **38** of the second terminal **30**.

In case the second terminal **30** is a calling terminal, an avatar data registered in the image database **37** of the second terminal **30** may be transmitted to the first terminal **10** to display the avatar data on the display **18**.

The media server **20** may include an SIP system **22**, a scheduling unit **27**, and an image database **28**.

In case the avatar data of the calling party are registered in the first terminal **10**, the avatar data of the calling party may not be registered in the image database **28** of the media server **20**. In this case, the avatar data of the calling party may be transmitted from the first terminal **10** to the second terminal **30** via the media server **20**. The media server **20** may temporarily store the avatar data of the calling party during transmission of the avatar data of the calling party, and the temporarily stored avatar data may be deleted or not deleted after the transmission.

The SIP system **22** of the media server **20** is compatible with the SIP systems **12** and **32** of the first and second terminals **10** and **30**. The SIP system **22** may include an SIP connection setup/release unit **24** and an RTP/RTCP transmitting unit **26** to correspond with the SIP systems **12** and **32**.

When the SIP connection setup/release unit **14** sends an SIP channel connection request to the media server **20**, the media server **20** accepts the request and sets the SIP channel connection with the first terminal **10**. Through the SIP channel, the first terminal **10** can send the avatar data of the calling party (RTP data) to the media server **20**, and the media server **20** can send the receipt notification message (e.g., a BYE message) to the first terminal **10** in response to the received avatar data.

The scheduling unit **27** and the image database **28** may be provided to register the avatar data of the calling/called party.

The calling and called parties can register different avatar data for different call conditions.

For example, the called party can register different avatar data in the image database **28** for different call conditions, such as when ready to receive a call, receiving another call, has the terminal **30** powered off, and incapable of receiving a call (e.g., when in a theater, a meeting, or a bathroom).

The scheduling unit **27** checks the call condition of the called party and selects one of the avatar data corresponding to the checked call condition. Also, other data such as iden-

tifiers, phone numbers, as well as the avatar data can be registered in the image database **28** for both the calling and called parties.

In this manner, the avatar data are registered and set according to the call condition. Therefore, when the first terminal **10** sends a call request and an avatar data forwarding request, the media server **20** searches the avatar data of the image database **28** according to the identifier or phone number of the calling party to find an avatar corresponding to the calling party and sends the avatar to the second terminal **30**, such that the avatar of the calling party can be displayed on the display **38** of the second terminal **30**.

Further, the media server **20** checks the call condition of the second terminal **30**, selects an avatar corresponding to the call condition from the image database **28**, and sends the avatar to the first terminal **10** for displaying on the display **18**.

Hereinafter, a method of identifying a calling/called party will now be described. There are two ways of transmitting the avatar data: one way is to transmit the avatar data that are registered in the terminal **10** or terminal **30**, and another way is to transmit the avatar data that are previously registered in the media server **20**.

FIG. **2** is a flowchart showing a method of transmitting an avatar data registered in a terminal according to a preferred embodiment of the present invention; and

Referring to FIGS. **1** and **2**, avatar data of the calling party are registered in the image database **17** of the first terminal **10** in operation **S41**. Herein, the avatar data of the calling party are not registered in the media server **20**. The avatar data may include still picture data, moving picture data, text data, as well as avatar data. The avatar data are image data representing a person and it is available from the Internet. Also, the still picture and moving picture data may be picture data of the calling party taken with a camera such as a built-in camera of the terminal **10**. Information about the calling party may be contained in the text data to represent the calling party. The calling party can register one of the avatar data, the still picture data, the moving picture data, the text data, and a combination thereof.

In operation **S42**, the first terminal **10** of the calling party transmits a call request to the second terminal **30** of the called party. The way of the call request is well known in the art.

In operation **S43**, the SIP channel connection is set between the first terminal **10** and the media server **20**. After the SIP channel is set, data and control signals can be transmitted between the first terminal **10** and the media server **20**.

In operation **S44**, the first terminal **10** transmits the avatar data of the calling party from the image database **17** to the media server **20** through the RTP channel in the form of packet.

In operation **S45**, the media server **20** sends a receipt notification message (e.g., a BYE message) to the first terminal **10** through the RTCP channel when the media server **20** receives the avatar data of the calling party.

In operation **S46**, the media server **20** transmits the received avatar data of the calling party to the second terminal **30** through the RTP channel between the media server **20** and the second terminal **30**. After the avatar data of the calling party are transmitted to the second terminal **30**, the avatar data may be deleted from the media server **20**. The RTP and RTCP channels are opened between the media server **20** and the second terminal **30** before the avatar data of the calling party are transmitted to the second terminal **30**. The called party can open the RTP and RTCP channels by manipulating the second terminal **30**, for example, pressing an "ON" button.

In operation **S47**, the second terminal **30** displays the received avatar data of the calling party. Therefore, the called

party of the second terminal **30** can exactly identify the calling party through the displaying avatar data. The second terminal **30** may register the received avatar data of the calling party in the image database **37** to display the registered avatar data instead of repeatedly receiving the avatar data from the first terminal **10** when the first terminal **10** requests a call again.

In operation **S48**, the media server **20** asks the second terminal **30** for a call condition through the RTCP channel, and correspondingly the second terminal **30** sends its call condition to the media server **20** through the RTCP channel, such that the media server **20** can check the call condition of the second terminal **30**.

When the calling party makes a call to the called party, the called party may be in various situations such as when ready to receive a call, receiving another call, being on duty, and incapable of receiving a call. Also, the second terminal **30** of the called party may be power-off or incapable of receiving a call. The term "call condition(s)" is used to denote such situations and conditions. That is, when the media server **20** asks the second terminal **30** for the call condition, the second terminal **30** may inform the media server **20** of its call condition among such situations and conditions. The call condition checking operation is well known to those of skill in the art.

In operation **S49**, the media server **20** selects an avatar of avatar data of the called party corresponding to the checked call condition from the image database **28**. For this operation, the called party can register avatar data having different avatars, pictures and texts in image database **28** of the media server **20** for different call conditions. Also, since the calling party of the first terminal **10** can be a called party, the calling party of the first terminal **10** can register his/her avatar data in the image database **28** for different call conditions.

In operation **S50**, the media server **20** transmits the selected avatar of the called party to the first terminal **10** through the RTP channel.

In operation **S51**, the first terminal **10** displays the received avatar of the called party. The first terminal **10** may register the received avatar of the called party in its image database **17** for later usage, for the same purpose as is described in operation **S47**.

In operation **S52**, the SIP channel connection between the **10** and the media server **20** is released.

Therefore, each of the calling party and the called party can see the avatar of the opposing party when making and answering a call, thereby exactly identifying the opposing party.

If the second terminal **30** accepts the call request of the first terminal **10** in operation **S53**, communication channel between the first and second terminals **10** and **30** is open for the communication therebetween in operation **S54**.

After the communication between the terminals **10** and **30**, the communication channel is closed as is well known in the art.

FIG. **3** is a flowchart showing a method of transmitting an avatar data previously registered in a media server according to a preferred embodiment of the present invention.

Referring to FIGS. **1** and **3**, avatar data for different call conditions are registered in the media server **20** in operation **S61**. Both the called party and the calling party can register their avatar data for their different call conditions, and the avatar data may be registered together with identifiers and phone numbers.

The terminals **10** and **30** do not store opposing party's avatar data. But the terminals **10** and **30** may store the opposing party's avatar data after a call (described later).

The avatar data may include still picture data, moving picture data, text data, etc., as well as avatar data.

The avatar data may be registered in the media server with the first terminal **10**, the second terminal **30**, a personal computer (PC), or other devices.

In operation **S62**, the calling party of the first terminal **10** requests a call to the media server **20**. The operation of the call request is well known in the art.

In operation **S63**, the SIP channel connection is set between the first terminal **10** and the media server **20** in response to the call request. After the SIP channel is set, data and control signals can be transmitted between the first terminal **10** and the media server **20**.

In operation **S64**, the first terminal **10** transmits an avatar data forwarding request to the media server **20** through the RTP channel. Since the avatar data of the calling party are already registered in the media server **20**, the first terminal **10** can request the media server **20** to send the avatar data of the calling party to the second terminal **30** by transmitting the avatar data forwarding request.

In operation **S65**, the media server **20** sends a receipt notification message (e.g., a BYE message) to the first terminal **10** through the RTCP channel when the media server **20** receives the avatar data forwarding request. That is, the media server **20** sends the receipt notification message to inform the first terminal **10** that the avatar data forwarding request is successfully received. Therefore, the first terminal **10** can check that its avatar data forwarding request is successfully transmitted to the media server **20**.

In operation **S66**, the media server **20** transmits the avatar data of the calling party from the image database **28** to the second terminal **30** through the RTP channel in response to the avatar data forwarding request. The second terminal **30** may request to open the RTP and RTCP channels between the media server **20** and the second terminal **30** before the avatar data of the calling party are transmitted to the second terminal **30**. That is, the called party can open the RTP and RTCP channels by manipulating the second terminal **30**, for example, pressing an "ON" button.

In operation **S67**, the second terminal **30** displays the received avatar data of the calling party. Therefore, the called party of the second terminal **30** can exactly identify the calling party through the displaying avatar data. The second terminal **30** may register the received avatar data of the calling party in the image database **37** to display them instead of repeatedly receiving the avatar data from the media server **20** when the first terminal **10** requests a call again.

In operation **S68**, the media server **20** asks the second terminal **30** for a call condition through the RTCP channel, and correspondingly the second terminal **30** sends its call condition to the media server **20** through the RTCP channel, such that the media server **20** can check the call condition of the second terminal **30**.

The term "call condition" denotes the same meaning as described above.

In operation **S69**, the media server **20** selects an avatar of the avatar data of the called party corresponding to the checked call condition from the image database **28**. Since the avatar data having different avatars, pictures and texts that are previously registered in image database **28** of the media server **20** for different call conditions, the media server **20** can easily select the avatar corresponding to the call condition.

In operation **S70**, the media server **20** transmits the selected avatar of the called party to the first terminal **10** through the RTP channel.

In operation **S71**, the first terminal **10** displays the received avatar of the called party. The first terminal **10** may register

the received avatar of the called party in its image database 17 for later usage, for the same purpose as is described in operation S67.

In operation S72, the SIP channel connection between the 10 and the media server 20 is released.

Therefore, each of the calling party and the called party can see the avatar of the opposing party when making and answering a call, thereby exactly identifying the opposing party.

If the second terminal 30 accepts the call request of the first terminal 10 in operation S73, communication channel between the first and second terminals 10 and 30 is open for the communication therebetween in operation S74.

After the communication between the terminals 10 and 30, the communication channel is closed as is well known in the art.

As described above, the calling party and called party easily identify the opposing party using the SIP protocol, such that the called party can selectively answer the call depending on the calling party, and the calling party can be informed promptly when dialing a wrong number.

Further, in case the calling party does not register the avatar data in the media server, the calling party can utilize the avatar data of his/her terminal to transmit the avatar to the called party when making a call.

Furthermore, when the called party receives a call at least one time from the calling party, the called party can register the avatar data of the calling party in the terminal for later usage, such that the terminal of the called party can display the registered avatar data instead of repeatedly receiving the avatar data when the same calling party called. In the same way, when the calling party requests a call to the called party, the calling party can register the avatar data received from the called party for later usage instead of repeatedly receiving the avatar data of the called party.

The method and communication system of the present invention provides an easy way of identifying the calling/called party by utilizing the well known SIP protocol without adding additional software and hardware.

It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention. Thus, it is intended that the present invention covers the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

[1. A method of identifying a calling party and call conditions of a called party, comprising the steps of:

registering image data of a calling party in at least one a first terminal or a media server;

transmitting the image data and a call request of the first terminal to a second terminal via the media server;

displaying the image data of the calling party on the second terminal;

transmitting image data of the called party previously registered in the media server to the first terminal when at least one of the image data or the call request is transmitted to the media server, wherein the image data of the called party include different images for different call conditions; and

displaying the image data of the called party on the first terminal.]

[2. The method according to claim 1, wherein the media server checks the different call condition of the called party, selects an image corresponding to the different call condition from an image database of the media server, and sends the image to the calling party for displaying on a display of the calling party.]

[3. The method according to claim 2, wherein the different call conditions include ready to receive a call, receiving another call, terminal powered off, or incapable of receiving a call.]

[4. The method according to claim 1, wherein the step of transmitting the image data of the called party to the first terminal includes the steps of:

the media server requesting a call condition of the second terminal;

sending the call condition of the second terminal to the media server;

selecting an image corresponding to the call condition from the image data registered in the media server; and transmitting the selected image to the first terminal.]

[5. The method according to claim 1, wherein the image data of the called party transmitted to the first terminal is registered in the first terminal.]

[6. The method according to claim 1, wherein the image data of the calling party transmitted to the second terminal is registered in the second terminal.]

[7. The method according to claim 1, wherein the image data of the calling party are selected from the group consisting of avatar data, still picture data, moving picture data, text data, and combinations thereof.]

[8. The method according to claim 1, wherein the image data of the calling party and the image data corresponding to the different call conditions of the called party are transmitted through RTP (real time transport protocol) channels after SIP (session initiation protocol) channel connections are set between the first terminal and the media server and between the media server and the second terminal.]

[9. A method of identifying another party, comprising the steps of:

registering image data of a calling party and different image data corresponding to call conditions of a called party in a media server;

transmitting a call request and an image data forwarding request of a first terminal to the media server;

transmitting the registered image data of the calling party from the media server to a second terminal in response to the image data forwarding request; and

displaying the image data of the calling party on the second terminal.]

[10. The method according to claim 9, further comprising the steps of:

when the image data forwarding request of the first terminal is transmitted to the media server, transmitting the image data corresponding to the call conditions of the called party from the media server to the first terminal;

and displaying the image data of the called party on the first terminal.]

[11. The method according to claim 10, wherein the step of transmitting the image data corresponding to the call conditions of the called party to the first terminal includes the steps of:

the media server requesting a call condition of the second terminal;

sending the call condition of the second terminal to the media server;

selecting an image corresponding to the call condition from the media server; and transmitting the selected image to the first terminal.]

[12. The method according to claim 10, wherein the image data of the called party transmitted to the first terminal is registered in the first terminal.]

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[13. The method according to claim 9 wherein the image data of the calling party transmitted to the second terminal is registered in the second terminal.]

[14. The method according to claim 9, wherein the image data of the calling party are selected from the group consisting of avatar data, still picture data, moving picture data, text data, and combinations thereof.]

[15. The method according to claim 9, wherein the image data of the calling party and the image data corresponding to the call conditions of the called party are transmitted through RTP channels after SIP channel connections are set between the first terminal and the media server and between the media server and the second terminal.]

[16. A communication system for identifying another party, comprising:

a first terminal having a communication unit for requesting a call, an SIP system for transmitting image data of a calling party and receiving image data corresponding to a call condition of a called party, a display for displaying the image data of the called party, and an image database for registering the image data of the calling party;

a media server having an SIP system for transmitting the image data of the calling party received from the first terminal to the called party and transmitting the image data corresponding to the call condition of the called party to the first terminal, an image database for registering the image data of the called party in accordance with the call condition, and means for selecting one of the image data of the called party corresponding to the call condition; and

a second terminal having a communication unit for responding to the call requested from the first terminal to open a communication channel with the first terminal, an SIP system for receiving the image data of the calling party from the first terminal, and a display for displaying the image data of the calling party.]

[17. The communication system according to claim 16, wherein the image data corresponding to different call conditions of the called party are registered in the image database of the media server through the second terminal or other communication means.]

[18. The communication system according to claim 16, wherein the image data of the calling party and the image data corresponding to the call condition of the called party are transmitted through an RTP channel.]

[19. A communication system for identifying another party, comprising:

a first terminal having a communication unit for requesting a call, an SIP system for transmitting an image data forwarding request of a calling party and receiving image data corresponding to a call condition of a called party, and a display for displaying the image data of the called party;

a media server having an SIP system for transmitting the image data of the calling party to the called party in response to the image data forwarding request and transmitting the image data corresponding to a call condition of the called party to the first terminal, an image database for registering the image data in accordance with the call condition, and means for selecting one of the image data of the called party corresponding to the call condition; and

a second terminal having a communication unit for responding to the call requested from the first terminal to open a communication channel with the first terminal, an SIP system for receiving the image data of the calling

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party from the first terminal, and a display for displaying the image data of the calling party.]

[20. The communication system according to claim 19, wherein the registered image data in the image database include the image data of the calling party and the image data corresponding to different call conditions of the called party.]

[21. The communication system according to claim 19, wherein the image data are registered in the image database through the first terminal, the second terminal, or other communication means.]

[22. The communication system according to claim 19, wherein the image data of the calling party and the image data corresponding to the call condition of the called party are transmitted through an RTP channel.]

[23. A method of identifying call conditions of a called party, comprising the steps of:

transmitting a call request of the first terminal to a second terminal via a media server;

transmitting image data of the called party to the first terminal, wherein the image data of the called party include different images for different call conditions; and

displaying the image data of the called party on the first terminal.]

[24. A method of identifying another party, comprising the steps of:

registering different image data corresponding to call conditions of a second terminal;

transmitting a call request of a first terminal to the second terminal;

transmitting the registered image data corresponding to the call condition of the second terminal; and

displaying the image data received from the second terminal on the first terminal.]

[25. A communication system for identifying another party, comprising:

a first terminal having a communication unit for requesting a call, an SIP system for receiving image data corresponding to a call condition of a called party, and a display for displaying the image data of the called party;

a media server having an SIP system for transmitting the image data corresponding to the call condition of the called party to the first terminal, an image database for registering the image data of the called party in accordance with the call condition, and means for selecting one of the image data of the called party corresponding to the call condition; and

a second terminal having a communication unit for responding to the call requested from the first terminal to open a communication channel with the first terminal.]

26. A communication terminal for providing communication with a terminal requesting a call using image data, the communication terminal comprising:

a storage unit storing avatar data of the communication terminal;

a communication unit;

a display unit; and

a controller cooperating with the communication unit and the display unit to:

receive image data of a calling terminal and a call request from the calling terminal, the image data of the calling terminal identifying the calling terminal;

display, on the display unit, the image data of the calling terminal when answering a call; and

transmit image data of the communication terminal to the calling terminal, the image data of the communication

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terminal identifying the communication terminal and being taken with a camera built in the communication terminal,

wherein when the image data of the communication terminal is replaced with avatar data of the communication terminal, the avatar data of the communication terminal is transmitted to the calling terminal, and

wherein the avatar data of the communication terminal is pre-registered in the storage unit and includes still picture data, moving picture data or text data.

27. The communication terminal of claim 26, wherein the pre-registered avatar data of the communication terminal is stored in the storage unit based on a call condition of the communication terminal, and the pre-registered avatar data includes different images for different call conditions.

28. The communication terminal of claim 26, wherein the image data of the calling terminal is replaced with avatar data of the calling terminal according to a call condition of the calling terminal.

29. The communication terminal of claim 28, wherein the storage unit configured to further store therein the avatar data of the calling terminal.

30. A method for providing communication with a terminal requesting a call using image data, the method in a called terminal comprising:

receiving, by the called terminal, image data of a calling terminal and a call request from the calling terminal, the image data of the calling terminal identifying the calling terminal;

displaying, on a display unit of the called terminal, the image data of the calling terminal when answering a call;

transmitting, by the called terminal, image data of the called terminal to the calling terminal, the image data of the called terminal identifying the called terminal and being taken with a camera built in the called terminal,

wherein when the image data of the called terminal is replaced with avatar of the called terminal, the avatar data of the called terminal is transmitted to the calling terminal, and

wherein the avatar data of the called terminal is pre-registered in a storage unit of the called terminal and includes still picture data, moving picture data or text data.

31. The method of claim 30, wherein the pre-registered avatar data of the called terminal is stored in the storage unit based on a call condition of the called terminal, and the pre-registered avatar data includes different images for different call conditions.

32. The method of claim 30, wherein the image data of the calling terminal is replaced with avatar data of the calling terminal according to a call condition of the calling terminal.

33. The method of claim 32, further comprising: storing, by the called terminal, the avatar data of the calling terminal in the storage unit of the called terminal.

34. A communication terminal for providing communication with a terminal receiving a call using image data, the communication terminal comprising:

a storage unit storing avatar data of the communication terminal;

a communication unit;

a display unit; and

a controller cooperating with the communication unit and the display unit to:

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transmit image data of the communication terminal and a call request to a called terminal, the image data of the communication terminal identifying the communication terminal and being taken with a camera built in the communication terminal;

receive image data of the called terminal, the image data of the called terminal identifying the called terminal; and display, on the display unit, the image data of the called terminal when making a call,

wherein when the image data of the communication terminal is replaced with avatar data of the communication terminal, the avatar data of the communication terminal is transmitted to the called terminal, and

wherein the avatar data of the communication terminal is pre-registered in the storage unit and includes still picture data, moving picture data or text data.

35. The communication terminal of claim 34, wherein the pre-registered avatar data of the communication terminal is stored in the storage unit based on a call condition of the communication terminal, and the pre-registered avatar data includes different images for different call conditions.

36. The communication terminal of claim 34, wherein the image data of the called terminal is replaced with avatar data of the called terminal according to a call condition of the called terminal.

37. The communication terminal of claim 36, wherein the storage unit configured to further store therein the avatar data of the called terminal.

38. A method for providing communication with a terminal receiving a call using image data, the method in a calling terminal comprising:

transmitting, by the calling terminal, image data of the calling terminal and a call request to a called terminal, the image data of the calling terminal identifying the calling terminal and being taken with a camera built in the calling terminal;

receiving, by the calling terminal, image data of the called terminal, the image data of the called terminal identifying the called terminal; and

displaying, on a display unit of the calling terminal, the image data of the called terminal when making a call, wherein when the image data of the calling terminal is replaced with avatar data of the calling terminal, the avatar data of the calling terminal is transmitted to the called terminal, and

wherein the avatar data of the calling terminal is pre-registered in a storage unit of the calling terminal and includes still picture data, moving picture data or text data.

39. The method of claim 38, wherein the pre-registered avatar data of the calling terminal is stored in the storage unit based on a call condition of the calling terminal, and the pre-registered avatar data includes different images for different call conditions.

40. The method of claim 38, wherein the image data of the called terminal is replaced with avatar data of the called terminal according to a call condition of the called terminal.

41. The method of claim 40, further comprising:

storing, by the calling terminal, the avatar data of the called terminal in the storage unit of the calling terminal.