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(54) **INTERNET MULTIMEDIA SUBSYSTEM (IMS) CONTROL OVER SESSION TRANSFER BETWEEN COMMUNICATION NETWORKS**

(71) Applicant: **Sprint Communications Company L.P.**, Overland Park, KS (US)

(72) Inventors: **Rajil Malhotra**, Olathe, KS (US); **David S. McGinniss**, Aurora, IL (US); **Deveshkumar Narendrapratap Rai**, Overland Park, KS (US); **Saravana Velusamy**, Olathe, KS (US)

(73) Assignee: **Sprint Communications Company L.P.**, Overland Park, KS (US)

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H04W 36/00	(2009.01)
H04W 76/00	(2009.01)

(52) **U.S. Cl.**
CPC ***H04W 92/02*** (2013.01); ***H04W 36/0022*** (2013.01); *H04W 76/007* (2013.01)

(58) **Field of Classification Search**
CPC . H04W 4/22; H04W 36/0022; H04W 76/007; H04W 36/14; H04L 65/1016; H04L 65/60
See application file for complete search history.

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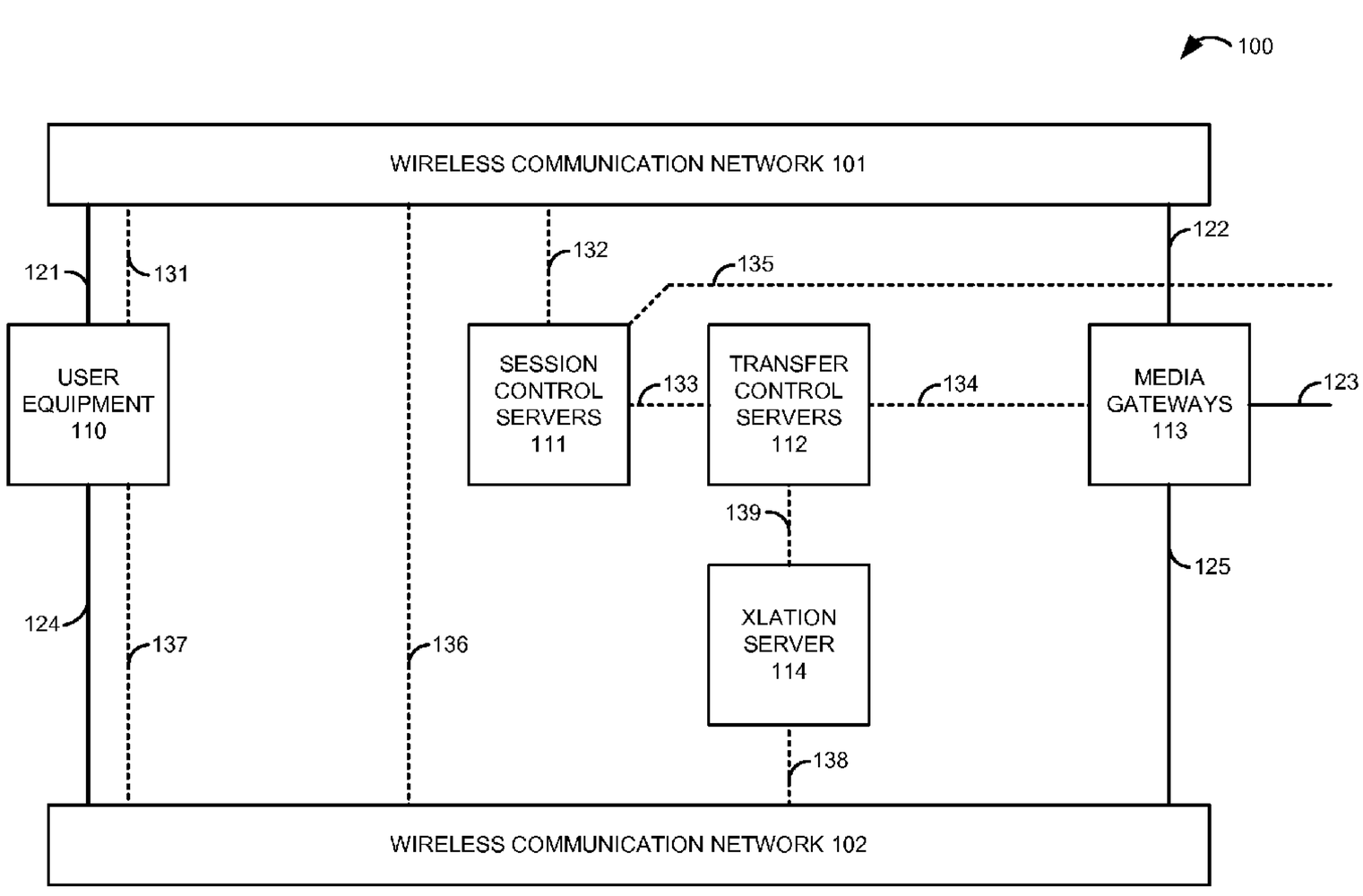
Primary Examiner — George Eng
Assistant Examiner — Nam Huynh

(57) **ABSTRACT**

In a communication system, a session control server receives a session request for User Equipment (UE) over a first network and exchanges signaling with the UE and a transfer control server to establish a media session. The transfer control server sends an association of the UE and the transfer control server to a translation server. The translation server associates the UE with the transfer control server. The translation server receives a transfer request for the UE from a second network and identifies the transfer control server associated with the UE. The translation server transfers the transfer request for delivery to the transfer control server. The transfer control server exchanges signaling with the second network responsive to the transfer request to transfer the media session for the UE from the first network to the second network.

20 Claims, 8 Drawing Sheets



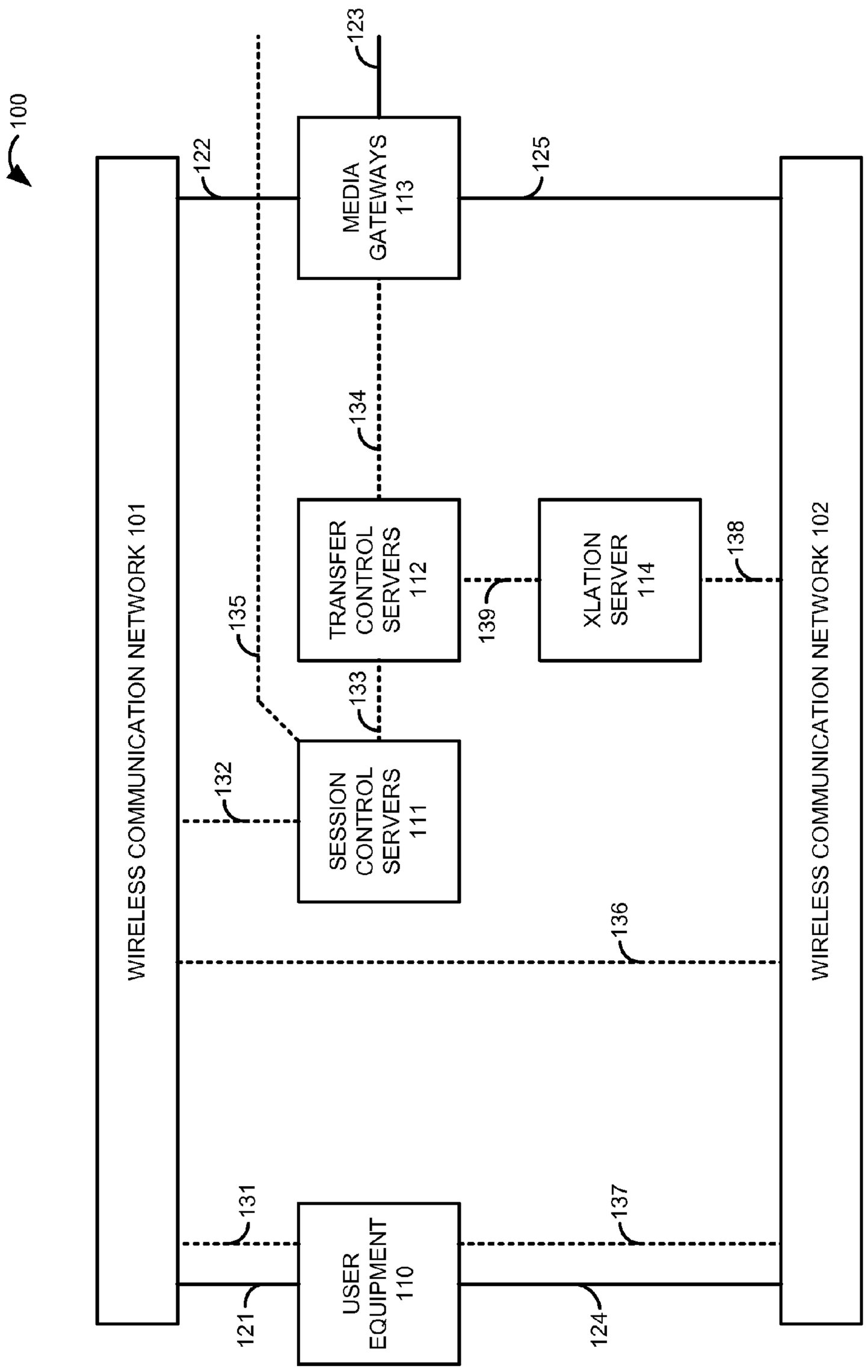

100
WIRELESS COMMUNICATION NETWORK 101
WIRELESS COMMUNICATION NETWORK 102
MEDIA GATEWAYS 113
SESSION CONTROL SERVERS 111
TRANSFER CONTROL SERVERS 112
XLATION SERVER 114
USER EQUIPMENT 110
121
122
123
124
125
131
132
133
134
135
136
137
138
139

FIGURE 1

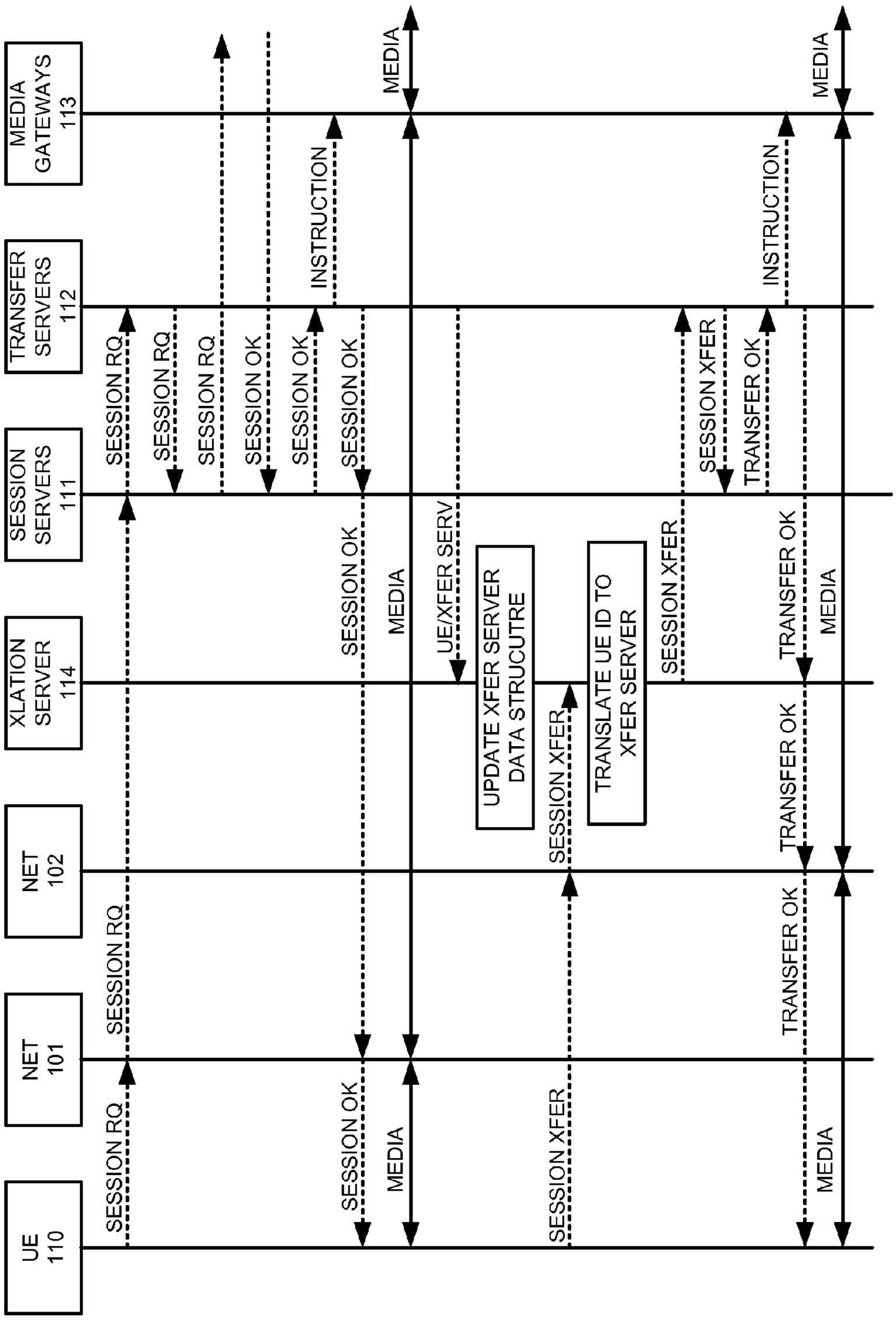

NET 101
UE 110
SESSION RQ
NET 102
XLATION SERVER 114
SESSION SERVERS 111
TRANSFER SERVERS 112
SESSION RQ
SESSION RQ
SESSION RQ
SESSION OK
SESSION OK
INSTRUCTION
SESSION OK
SESSION OK
MEDIA
UE/XFER SERV
UPDATE XFER SERVER DATA STRUCUTRE
SESSION XFER
TRANSLATE UE ID TO XFER SERVER
SESSION XFER
SESSION XFER
TRANSFER OK
INSTRUCTION
TRANSFER OK
MEDIA
MEDIA
MEDIA
TRANSFER OK
MEDIA

FIGURE 2

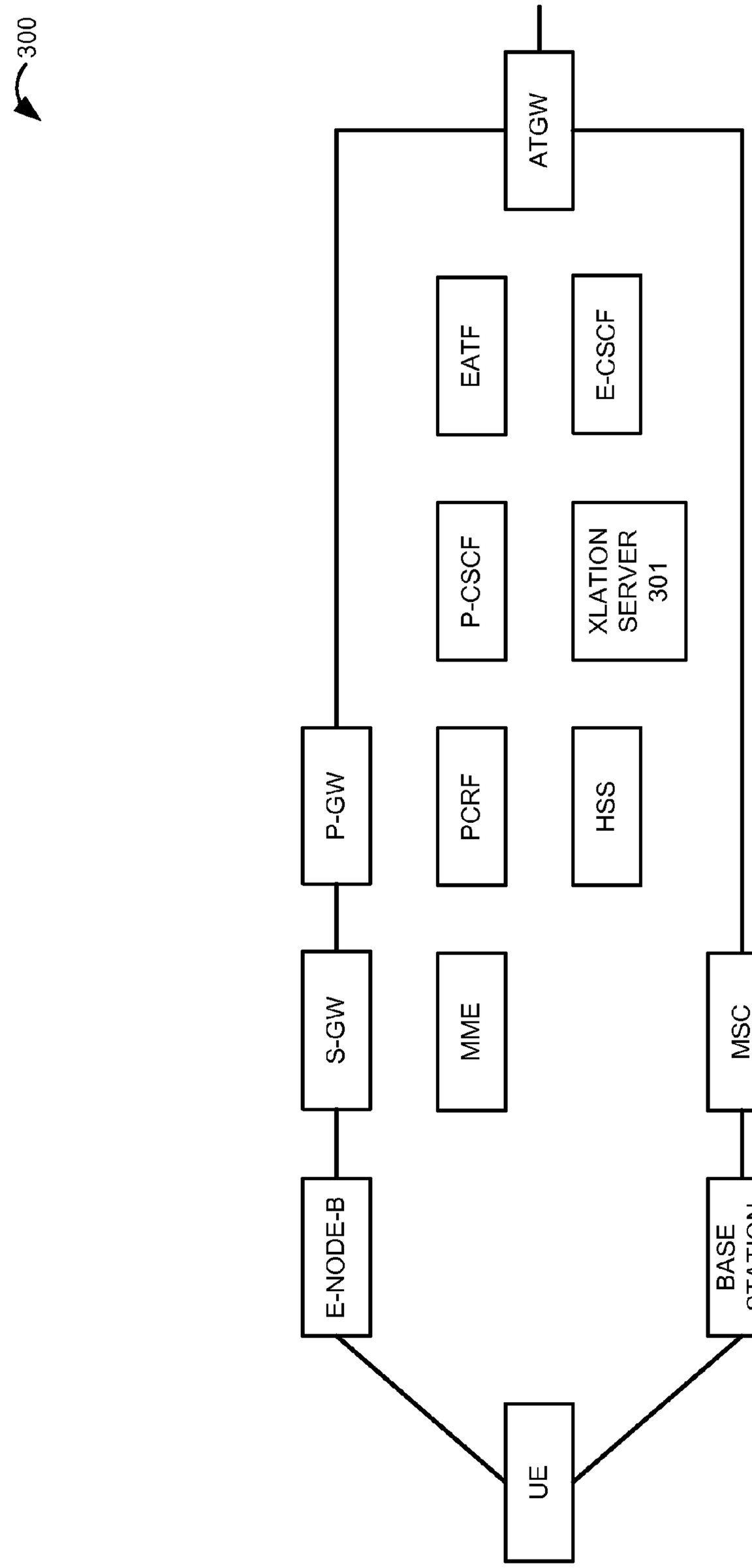

300
ATGW
EATF
E-CSCF
P-CSCF
XLATION SERVER 301
P-GW
PCRF
HSS
S-GW
MME
MSC
E-NODE-B
BASE STATION
UE

FIGURE 3

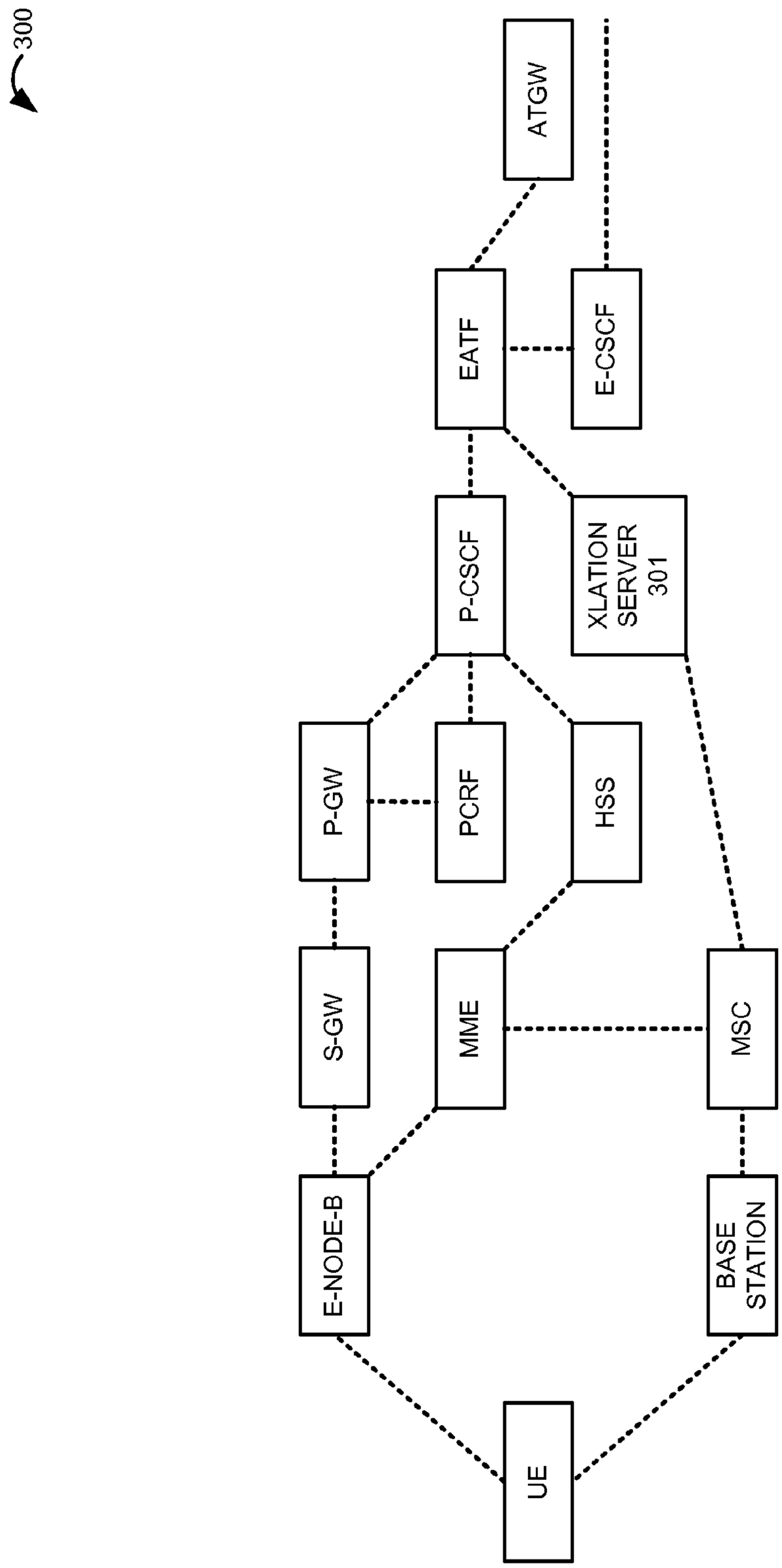

300
ATGW
EATF
E-CSCF
P-CSCF
XLATION SERVER 301
P-GW
PCRF
HSS
S-GW
MME
MSC
E-NODE-B
BASE STATION
UE

FIGURE 4

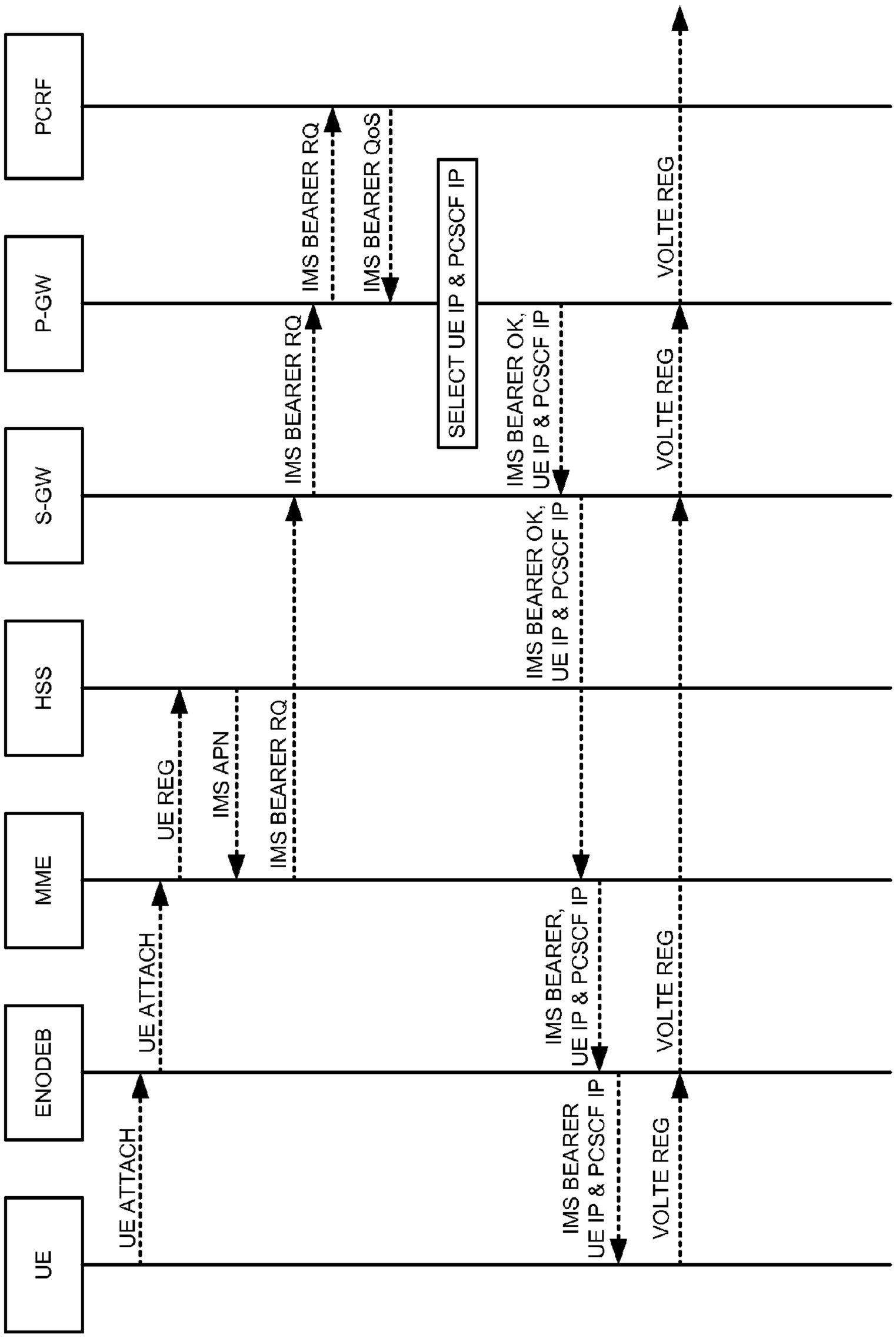

UE
ENODEB
MME
HSS
S-GW
P-GW
PCRF
UE ATTACH
UE ATTACH
UE REG
IMS APN
IMS BEARER RQ
IMS BEARER RQ
IMS BEARER RQ
IMS BEARER QoS
SELECT UE IP & PCSCF IP
IMS BEARER OK, UE IP & PCSCF IP
IMS BEARER OK, UE IP & PCSCF IP
IMS BEARER, UE IP & PCSCF IP
IMS BEARER UE IP & PCSCF IP
VOLTE REG
VOLTE REG
VOLTE REG
VOLTE REG
VOLTE REG

FIGURE 5

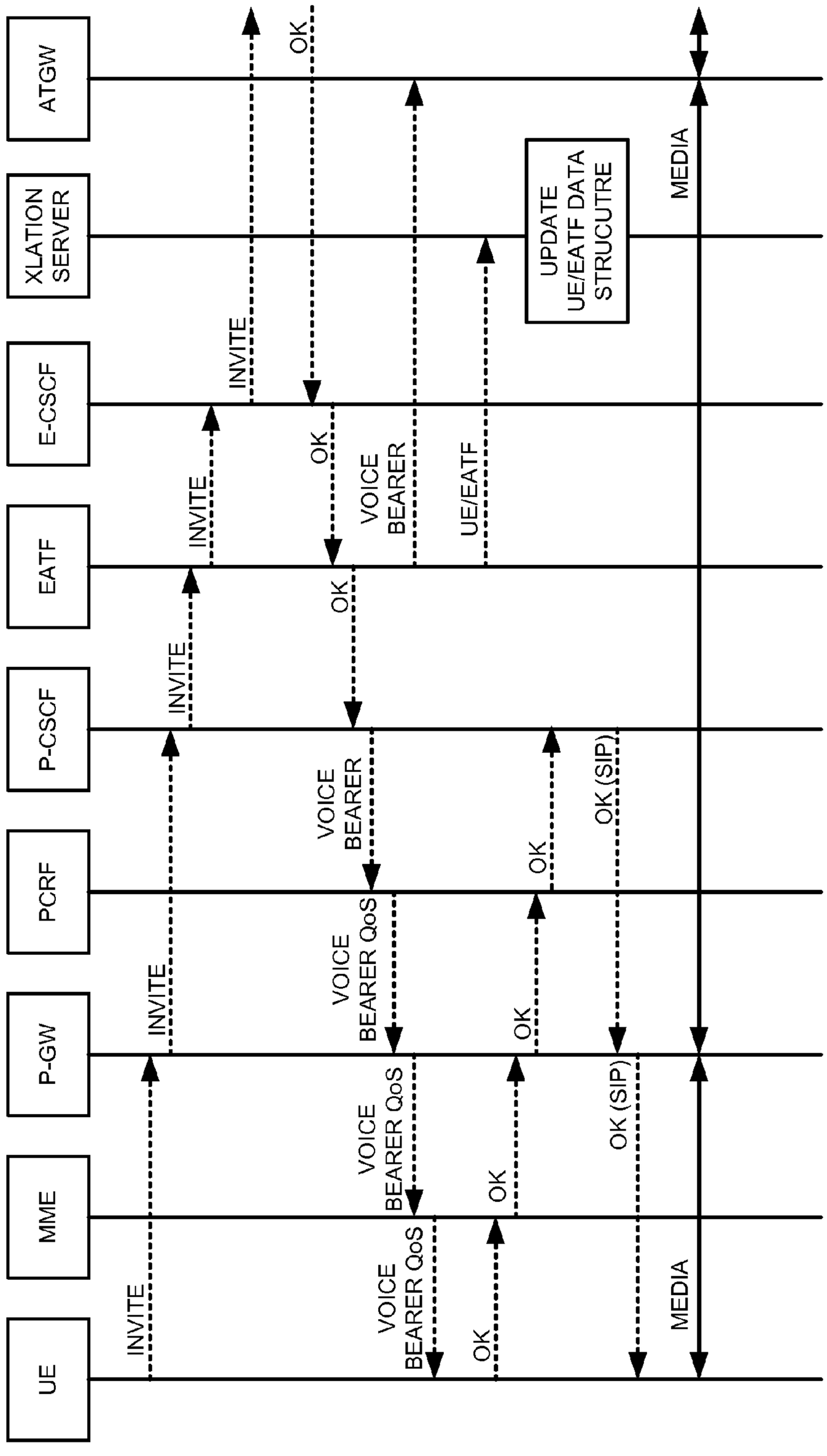

ATGW
XLATION SERVER
E-CSCF
EATF
P-CSCF
PCRF
P-GW
MME
UE
INVITE
OK
UPDATE UE/EATF DATA STRUCUTRE
MEDIA
VOICE BEARER
UE/EATF
VOICE BEARER QoS
OK (SIP)

FIGURE 6

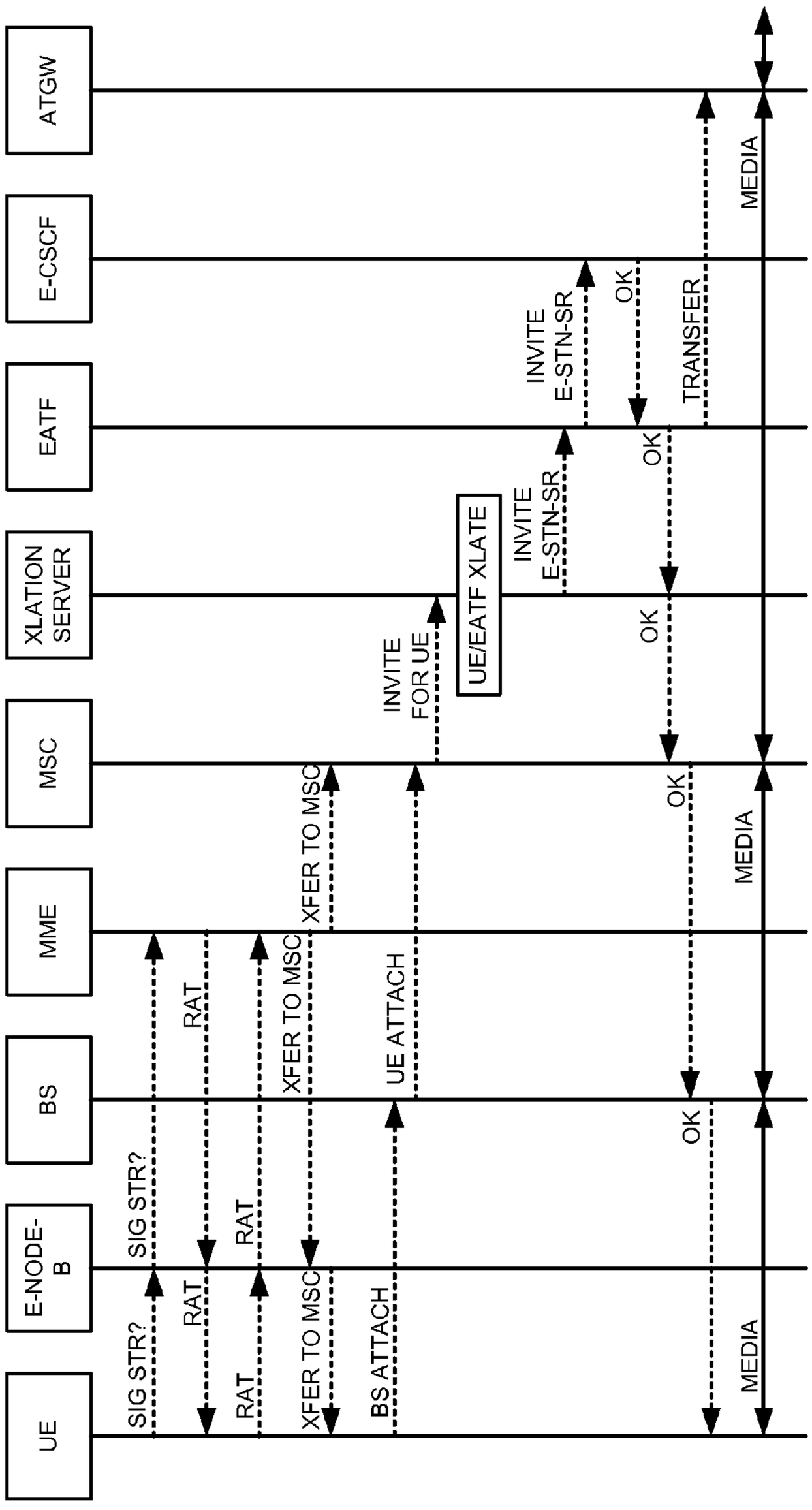

UE
E-NODE-B
BS
MME
MSC
XLATION SERVER
EATF
E-CSCF
ATGW
SIG STR?
RAT
XFER TO MSC
BS ATTACH
UE/EATF XLATE
INVITE FOR UE
INVITE E-STN-SR
OK
TRANSFER
MEDIA

FIGURE 7

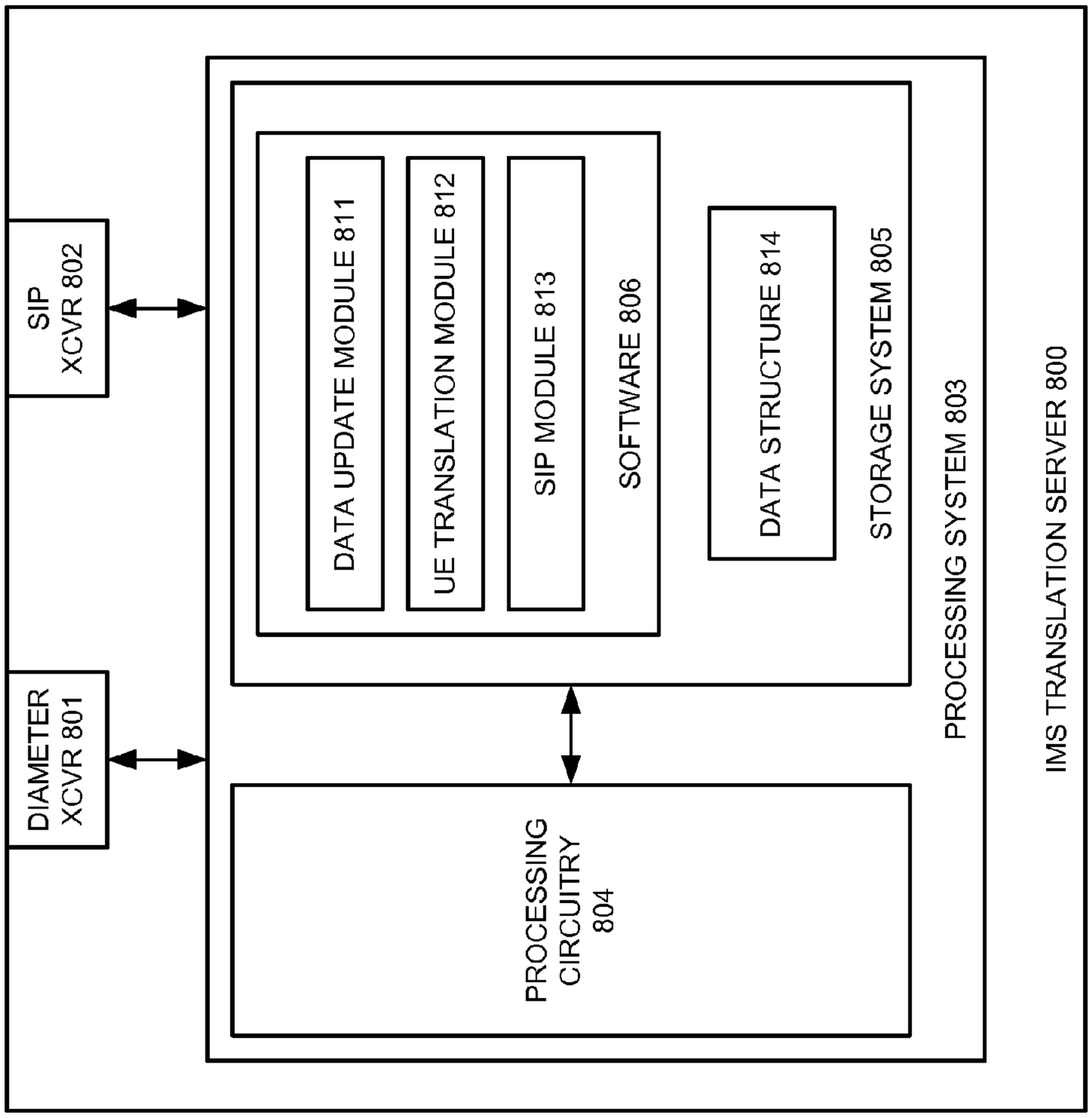

IMS TRANSLATION SERVER 800
PROCESSING SYSTEM 803
STORAGE SYSTEM 805
SOFTWARE 806
DATA UPDATE MODULE 811
UE TRANSLATION MODULE 812
SIP MODULE 813
DATA STRUCTURE 814
PROCESSING CIRCUITRY 804
DIAMETER XCVR 801
SIP XCVR 802

FIGURE 8

INTERNET MULTIMEDIA SUBSYSTEM (IMS) CONTROL OVER SESSION TRANSFER BETWEEN COMMUNICATION NETWORKS

TECHNICAL BACKGROUND

In the field of wireless communications, Long Term Evolution (LTE) networks provide User Equipment (UE) with Internet access and voice calling services. The voice calling service is referred to as Voice over LTE (VoLTE). LTE networks often use an Internet Multimedia Subsystem (IMS) to control these VoLTE sessions. When the UE registers on the LTE network, the LTE network assigns an IMS Proxy Call Session Control Function (P-CSCF) server to the UE. The UE then registers for VoLTE service with the IMS P-CSCF.

The UE may engage in wireless voice calls over the LTE network under the control of IMS. Unfortunately, the UE may lose wireless signal strength on the LTE network and change to a different wireless access network. If a VoLTE session is active for the UE, then the new wireless access network will contact an Access Transfer Control Function (ATCF) or an Emergency Access Transfer Function (EATF) in IMS to control the access network transfer for the voice session.

To prepare for these access transfers, numerous access network nodes need to have current contact information for the IMS ATCFs and EATFs on a per-session and per-UE basis. If the LTE network changes the P-CSCF for a UE during LTE registration, then the ATCF/EATF for the UE also changes since P-CSCFs and ATCF/EATFs are individually paired. The current technique for session transfer between networks is not efficient and is not effective.

TECHNICAL OVERVIEW

In a communication system, a session control server receives a session request for User Equipment (UE) over a first network and exchanges signaling with the UE and a transfer control server to establish a media session. The transfer control server sends an association of the UE and the transfer control server to a translation server. The translation server associates the UE with the transfer control server. The translation server receives a transfer request for the UE from a second network and identifies the transfer control server associated with the UE. The translation server transfers the transfer request for delivery to the transfer control server. The transfer control server exchanges signaling with the second network responsive to the transfer request to transfer the media session for the UE from the first network to the second network.

DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a communication system to transfer media sessions between wireless communication networks for User Equipment (UE).

FIG. **2** illustrates the operation of the communication system to transfer media sessions between wireless communication networks for a UE.

FIG. **3** illustrates a communication system having a translation server to transfer media sessions for a UE from a Long Term Evolution (LTE) network to a wireless voice network.

FIG. **4** illustrates the communication system having the translation server to transfer media sessions for a UE from an LTE network to a wireless voice network.

FIG. **5** illustrates the operation of the communication system having the translation server to transfer media sessions for a UE from an LTE network to a wireless voice network.

FIG. **6** illustrates the operation of the communication system having the translation server to transfer media sessions for a UE from an LTE network to a wireless voice network.

FIG. **7** illustrates the operation of the communication system having the translation server to transfer media sessions for a UE from an LTE network to a wireless voice network.

FIG. **8** illustrates an Internet Multimedia Subsystem (IMS) translation server to transfer media sessions between communication networks.

DETAILED DESCRIPTION

FIG. **1** illustrates communication system **100** to transfer media sessions between wireless communication networks **101-102** for User Equipment (UE) **110**. Communication system **100** comprises session control servers **111**, transfer control servers **112**, media gateways **113**, and translation server **114**. UE **110** engages in media sessions over wireless communication networks **101-102** through media gateways **113**. The media transferred over the media sessions might be audio, video, graphics, and the like. UE **110** comprises a phone, computer, media player, internet appliance, or some other apparatus having media components. Only UE **110** is shown for clarity, but there would typically be many more UEs that operate in a similar manner. Wireless communication networks **101-102** comprise Long Term Evolution (LTE), High Speed Packet Access (HSPA), High Rate Packet Data (HRPD), Evolution Data Optimized (EVDO), Global System for Mobile Communications (GSM), Code Division Multiple Access (CDMA), Wireless Fidelity (WiFi), Worldwide Interoperability for Microwave Access (WiMAX), or some other wireless communication system that supports wireless media sessions.

UE **110** and wireless communication network **101** communicate over data link **121** to transfer media over media sessions. Wireless communication network **101** and media gateways **113** communicate over data link **122** to transfer the media for the media sessions. Media gateways **113** and various other data systems (not shown) communicate over data link **123** to transfer the media for the media sessions.

After media session transfer, UE **110** and wireless communication network **102** communicate over data link **124** to transfer media over the transferred media sessions. Communication network **102** and media gateways **113** communicate over data link **125** to transfer the media for the transferred media sessions. Media gateways **113** and the other data systems (not shown) continue to communicate over data link **123** to transfer the media for the transferred media sessions.

UE **110** and wireless communication network **101** communicate over control link **131** to initiate and control these media sessions. Communication network **101** and session control servers **111** communicate over control link **132** to initiate and control the media sessions. Session control servers **111** and transfer control servers **112** communicate over control link **133** to initiate and control the media sessions. Transfer control servers **112** and media gateways **113** communicate over control link **134** to initiate and control the media sessions. Session control servers **111** and various control systems (not shown) communicate over control link **135** to initiate and control the media sessions.

Transfer control servers **112** and translation server **114** communicate over control link **139** to maintain a data structure. The data structure associates UE **110** with the one transfer control server **112** that is assigned to the current media session for UE **110**.

Wireless communication network **101** and wireless communication network **102** communicate over control link **136**

to transfer the wireless access for some of the media sessions for UE **110** from network **101** to network **102**. UE **110** and wireless communication network **102** communicate over control link **137** to transfer and control the media sessions. Wireless communication network **102** and translation server **114** communicate over control link **138** to transfer and control the media sessions. Translation server **114** and transfer control servers **112** communicate over control link **139** to transfer and control the media sessions. Transfer control servers **112** and session control servers **111** communicate over control link **133** to transfer the media sessions. Transfer control servers **112** and media gateways **113** communicate over control link **134** to transfer the media sessions.

Responsive to session set-up in wireless communication network **101**, individual transfer control servers **112** that are assigned to media sessions report their association with UE **110** to translation server **114**. When wireless communication network **102** transfers a session transfer request for UE **110** to translation server **114**, translation server **114** processes a UE **110** identifier through the data structure to identify the appropriate transfer control server **112** for the transferred media session—the transfer control server **112** assigned to the current media session for UE **110**. Translation server **114** forwards the session transfer request to the identified and appropriate transfer control server **112**. The identified transfer control server **112** then directs the media session transfer responsive to the transfer request.

Servers and gateways **111-114** comprise computer and communication circuitry, data storage equipment, and associated software/hardware components. Links **121**, **124**, **131**, and **137** comprise wireless links suitable for wireless communication networks **101-102**. Links **121-125** and **131-139** utilize various communication and control protocols, such as LTE, EVDO, HRPD, HSPA, GSM, CDMA, Internet Protocol (IP), Ethernet, Session Initiation Protocol (SIP), Diameter, Real-time Transfer Protocol (RTP), and/or some other format—including combinations thereof. For example, link **139** may include Diameter interfaces for data structure maintenance and SIP interfaces for session transfer messaging. Links **121-125** and **131-139** may include intermediate devices, systems, and networks.

FIG. **2** illustrates the operation of communication system **100** to transfer media sessions for UE **110** between wireless communication networks **101-102**. UE **110** transfers a session request to session control servers **111** over wireless communication network **101**. Session control servers **111** send a session request to one of transfer control servers **112**. The one transfer control server **112** sends a session request back to session control servers **111**. Session control servers **111** transfer a session request to a far-end system (not shown) and receive a session OK message from the far end system accepting the media session.

Session control servers **111** transfer a session OK message to the one transfer control server **112** assigned to the session. This transfer control server **112** sends a session instruction to media gateways **113** and sends a session OK back to session control servers **111**. Session control servers **111** send a session OK to UE **110** over wireless communication network **101**. UE **110** and the far-end system then exchange media for the session over communication network **101** and media gateways **113**.

In response to the session OK message, the one transfer control server **112** assigned to the session transfers an association of itself and UE **110** to translation server **114**. Translation server **114** updates its data structure to associate UE **110** with the one transfer control server **112** that is assigned to the session.

Subsequently, UE **110** sends a session transfer request for the media session to wireless communication network **102**. In some cases, networks **101-102** and UE **110** have already exchanged control signaling to make the session transfer decision. For example, UE **110** may be losing signal strength on wireless communication network **101** while maintaining adequate signal strength on wireless communication network **102** during an active video session. Wireless communication network **102** forwards the session transfer request to translation server **114**.

Translation server **114** receives the session transfer request for UE **110** from wireless communication network **102**. Translation server **114** processes its data structure to identify the individual transfer control server **112** that is currently assigned to the media session. In some cases, this data structure processing comprises translating a UE identifier into a session transfer number for the transfer control server **112** assigned to the session. Translation server **114** transfers the session transfer request to the appropriate one of transfer control servers **112**.

To transfer the media session, the transfer control server **112** assigned to the session transfers a session transfer message to session control servers **111**, and session control servers **111** return a transfer OK message to the transfer control server **112**. The transfer control server **112** assigned to the session sends a session transfer instruction to media gateways **113** and sends a transfer OK message to translation server **114**. Translation server **114** sends the transfer OK message to wireless communication network **102**. Wireless communication network **102** transfers a transfer OK message to UE **110**.

UE **110** then exchanges media for the transferred media session over wireless communication network **102**. Wireless network **102** exchanges the media for the transferred session with media gateways **113**. Media gateways **113** continue to exchange the media with the far-end system (not shown) as before the media session transfer.

FIG. **3** illustrates communication system **300** having translation server **301** to transfer media sessions for User Equipment (UE) from a Long Term Evolution (LTE) network to a wireless voice network. Communication system **300** is an example of communication system **100**, although system **100** may use alternative configurations and operations. Communication system **300** comprises the following LTE network elements: eNodeB, Service Gateway (S-GW), Packet Data Network Gateway (P-GW), Mobility Management Entity (MME), Policy Charging and Rules Function (PCRF), and Home Subscriber System (HSS). Communication system **300** comprises the following wireless voice network elements: wireless base station and Mobile Switching Center (MSC). Communication system **300** comprises the following Internet Multimedia Subsystem (IMS) network elements: Proxy Call Session Control Function (P-CSCF), Emergency Call Session Control Function (E-CSCF), Emergency Access Transfer Function (EATF), and Access Transfer Gateway (ATGW).

FIG. **3** shows data links and omits control links for clarity. The LTE network provides data paths from the UE to the ATGW over the eNodeB, S-GW, and P-GW. Likewise, the wireless voice network provides data paths from the UE to the ATGW over the wireless base station and MSC. Thus, the UE may transfer the wireless access from the LTE network to the wireless voice network. In some examples, the media transfer comprises a Circuit Switch Fall Back (CSFB) from the LTE network to a GSM network or a CDMA network. In some examples, the media session comprises an emergency Voice over LTE (VoLTE) Single Radio Voice Call Continuity (SR-VCC) session.

FIG. **4** illustrates communication system **300** to transfer media sessions for the UE from the LTE network to the wireless voice network. FIG. **4** shows the control links and omits the data links for clarity. Note the control links between the MSC and the EATF through translation server **301**. The UE uses the LTE/IMS networks to establish an emergency media session and then uses the LTE/IMS/voice networks to transfer the wireless access for the emergency media session from the LTE network to the voice network. In some examples, the media transfer comprises a CSFB from the LTE network to a circuit switched wireless network. In some examples, the emergency media session comprises a VoLTE SR-VCC session.

FIG. **5** illustrates the operation of communication system **300** to transfer media sessions for the UE from the LTE network to the wireless voice network. The UE initially performs wireless attachment to the eNodeB. The eNodeB transfers an attachment message for the UE to the MME. The MME transfer an LTE registration for the UE to the HSS. The HSS processes the LTE registration and returns an IMS Access Point Name (APN) and perhaps an Internet APN as well. In some examples, the UE is identified as an SR-VCC device during LTE registration.

In response to the IMS APN, the MME transfers an IMS bearer request to the S-GW. The S-GW transfers the IMS bearer request to the P-GW. The P-GW interacts with the PCRF to obtain QoS and other control parameters for the IMS bearer. The P-GW selects an IP address for the UE (although the UE IP may be selected during a default bearer set-up for the internet APN). The P-GW also selects an IP address of the P-CSCF for the IMS bearer. The P-GW transfers an IMS bearer OK message to the S-GW indicating the UE IP and P-CSCF IP. The S-GW transfers an IMS bearer OK message to the MME indicating the UE IP and P-CSCF IP. The MME transfers an IMS bearer OK message to the UE over the eNodeB indicating the UE IP and P-CSCF IP. The UE then transfers an IMS VoLTE registration to the P-CSCF (not shown) over the eNodeB, S-GW, and P-GW. The P-CSCF registers the UE for VoLTE service, and in some examples, for an SR-VCC version of the VoLTE service.

Note that the P-GW selects the IMS P-CSCF for the UE during LTE registration. The PCRF or the HSS may specify this P-CSCF to the UE or provide data that drives the P-GW to select a particular P-CSCF. The P-GW may change its P-CSCF selection on the next LTE registration for the same UE. This P-CSCF change will cause a modification to the EATF that will serve the UE on the session.

FIG. **6** illustrates the operation of communication system **300** to transfer media sessions for the UE from the LTE network to the wireless voice network. The UE transfers an emergency SIP invite message for an emergency voice session to the P-CSCF over its IMS bearer through the LTE P-GW. The P-CSCF transfers the invite message to the EATF, and the EATF transfers the emergency invite message to the E-CSCF. The E-CSCF transfers the emergency invite to a Public Safety Answering Point (PSAP) (not shown). The PSAP returns a SIP OK message for the emergency voice session. The E-CSCF transfers the OK to the EATF, and the EATF transfers the SIP OK to the P-CSCF. The EATF transfers a voice bearer instruction (P-GW information) to ATGW for the UE. In response to the SIP OK, the EATF transfers an association of itself and the UE to translation server **301**. Translation server **301** updates its data structure to associate the UE with the EATF.

In response to the SIP OK, the P-CSCF instructs the LTE PCRF to add a voice bearer for the UE. The PCRF adds QoS and other parameters and instructs the P-GW to add the voice bearer for the UE. The P-GW transfers the voice bearer instruction to the MME (through the S-GW), and the MME which transfers a voice bearer instruction to the UE for authorization. The UE transfers an OK for the voice bearer to the MME, and the bearer OK is sent from the MME thru the S-GW to the P-GW. The P-GW transfers the voice bearer OK to the PCRF and the PCRF transfers the voice bearer OK to the P-CSCF. In response to the voice bearer OK from the PCRF, the P-CSCF transfers a SIP OK message to the UE over the IMS bearer. An emergency media session is then established between the UE and the PSAP over the LTE P-GW and the ATGW.

FIG. **7** illustrates the operation of communication system **300** to transfer media sessions for the UE from the LTE network to the wireless voice network. During an emergency VoLTE SR-VCC session, the UE reports declining LTE signal strength to the MME through the eNodeB. Through the eNodeB, the MME instructs the UE to perform Radio Access Technology (RAT) measurements—including a radio signal measurements of the wireless base station. The UE returns the RAT to the MME through the eNodeB. In response, the MME determines to transfer the media session from the LTE network to the wireless voice network. For example, the eNodeB radio signal may be fading rapidly as the base station radio signal remains strong.

The MME instructs the UE through the eNodeB to transfer the media session to the wireless base station. The UE then attaches to the wireless base station, and the base station informs the MSC of the UE attach. The MME instructs the MSC that the media session for the UE is transferring to the wireless base station and the MSC. In response to the session transfer and base station attachment, the MSC transfers a SIP invite to translation server **301**. Translation server **301** translates the UE ID from the MSC into the Emergency Session Transfer Number Single Radio (E-STN-SR) for the EATF using its data structure.

The EATF transfers the invite message to the E-CSCF, and the E-CSCF returns a corresponding SIP OK to the EATF. The EATF transfers the SIP OK to the MSC through translation server **301**. The EATF sends a session transfer instruction (with MSC information) to the ATGW for the UE. In response to the SIP OK, the MSC transfers a session transfer message to the UE through the base station. The media session is then transferred from the eNodeB and P-GW to the wireless base station and MSC. The media between the UE and the PSAP traverses the wireless base station, MSC, and ATGW.

FIG. **8** illustrates IMS translation server **800** to transfer media sessions between communication networks. IMS translation server **800** is an example of systems **114** and **301**, although these systems may use alternative configurations and operations. IMS translation server **800** comprises Diameter transceiver **801**, SIP transceiver **802**, and processing system **803**. Processing system **803** comprises processing circuitry **804** and storage system **805**. Storage system **805** stores software **806** and data structure **814**. Software **806** includes software modules **811-813**. Some conventional aspects of IMS translation server **800** are omitted for clarity, such as power supplies, enclosures, and the like. IMS translation server **800** may be centralized or distributed and may include various virtualized components.

Diameter transceiver **801** and SIP transceiver **802** comprise communication components, such as ports, signal processing circuitry, memory, software, and the like. Transceivers **801-802** may be integrated together. Diameter transceiver **801** exchanges database updates with ATCFs and/or EATFs to maintain current UE/ATCF and/or UE/EATF associations in data structure **814**. SIP transceiver **802** exchanges session

messages with network nodes, such as MSCs, to implement media session transfers. SIP transceiver **802** exchanges session messages with ATCFs and/or EATFs to facilitate these session transfers.

In processing system **803**, processing circuitry **804** comprises circuit boards, integrated circuitry, and associated electronics. Storage system **805** comprises non-transitory, machine-readable, data storage media, such as flash drives, disc drives, memory circuitry, servers, and the like. Software **806** comprises machine-readable instructions that control the operation of processing circuitry **804** when executed. Software **806** includes modules **811-813** and may also include operating systems, applications, utilities, databases, and the like. All or portions of software **806** may be externally stored on one or more storage media, such as flash drives, discs, servers, and the like.

When executed by processing circuitry **804**, data update module **811** directs circuitry **804** to exchange Diameter messages with ATCFs and/or EATFs to maintain current UE/ATCF and/or UE/EATF associations in data structure **814**. When executed by processing circuitry **804**, UE translation module **812** directs circuitry **1004** to translate UE IDs into IMS transfer server addresses/numbers using data structure **814**. When executed by processing circuitry **804**, SIP module **813** directs circuitry **804** to exchange SIP messages between the network nodes and the IMS control functions while allowing UE translation module **812** to enhance addressing information for the SIP messaging to the IMS control functions—possibly through the translation of session transfer numbers and/or IP addresses. Data structure **814** maintains database associations between individual UEs—ATCFs and/or individual UEs—EATFs.

The above description and associated figures teach the best mode of the invention. The following claims specify the scope of the invention. Note that some aspects of the best mode may not fall within the scope of the invention as specified by the claims. Those skilled in the art will appreciate that the features described above can be combined in various ways to form multiple variations of the invention. As a result, the invention is not limited to the specific embodiments described above, but only by the following claims and their equivalents.

What is claimed is:

1. A method of operating a communication system to transfer a media session for User Equipment (UE) between communication networks, the method comprising:

in a session control server, receiving a session request for the UE over a first one of the communication networks and exchanging first control signaling with the UE and a transfer control server to establish the media session for the UE over the first communication network;

in a transfer control server and in response to the first control signaling, transferring an association of the UE and the transfer control server for delivery to a translation server;

in the translation server, individually associating the UE with the transfer control server in the data structure responsive to the association from the transfer control server;

in the translation server, receiving a transfer request for the UE from a second one of the communication networks and processing the data structure to identify the transfer control server that is associated with the UE and transferring the transfer request for delivery to the transfer control server; and

in the transfer control server, exchanging second control signaling with the second communication network responsive to the transfer request to transfer the media session for the UE from the first communication network to the second communication network.

2. The method of claim **1** wherein receiving and transferring the session transfer request comprises translating a UE identifier into a session transfer number for the transfer control server.

3. The method of claim **1** wherein receiving and transferring the session transfer request comprises translating a UE identifier into a session transfer number for an Internet Multimedia Subsystem (IMS) Emergency Access Transfer Function (EATF).

4. The method of claim **1** wherein receiving the session request for the UE comprises receiving a Session Initiation Protocol (SIP) message into an Internet Multimedia Subsystem (IMS).

5. The method of claim **1** wherein the first communication network comprises a Long Term Evolution (LTE) network and the second communication network comprises one of a Code Division Multiple Access (CDMA) network and a Global System for Mobile communications (GSM) network.

6. The method of claim **1** wherein the session control server comprises an Internet Multimedia Subsystem (IMS) server.

7. The method of claim **1** wherein the session control server comprises an Internet Multimedia Subsystem (IMS) Call Session Control Functions (CSCF).

8. The method of claim **1** wherein the session control server comprises an Internet Multimedia Subsystem (IMS) Emergency Call Session Control Function (E-CSCF).

9. The method of claim **1** wherein the transfer control server comprises an Internet Multimedia Subsystem (IMS) server.

10. The method of claim **1** wherein the transfer control server comprises an Internet Multimedia Subsystem (IMS) Emergency Access Transfer Function (EATF).

11. A communication system to transfer a media session for User Equipment (UE) between communication networks, the communication system comprising:

a session control server configured to receive a session request for the UE over a first one of the communication networks and to exchange first control signaling with the UE and with a transfer control server to establish the media session for the UE over the first communication network;

the transfer control server configured, in response to the first control signaling, to transfer an association of the UE and the transfer control server for delivery to a translation server;

the translation server configured to individually associate the UE with the transfer control server in the data structure responsive to the association from the transfer control server, receive a transfer request for the UE from a second one of the communication networks, process the data structure to identify the transfer control server that is associated with the UE, and transfer the transfer request for delivery to the transfer control server; and

the transfer control server configured to exchange second control signaling with the second communication network responsive to the transfer request to transfer the media session for the UE from the first communication network to the second communication network.

12. The communication system of claim **11** wherein the translation server is configured to translate a UE identifier into a session transfer number for the transfer control server.

13. The communication system of claim **11** wherein the translation server is configured to translate a UE identifier

into a session transfer number for an Internet Multimedia Subsystem (IMS) Emergency Access Transfer Function (EATF).

14. The communication system of claim **11** wherein the session request comprises a Session Initiation Protocol (SIP) message for an Internet Multimedia Subsystem (IMS).

15. The communication system of claim **11** wherein the first communication network comprises a Long Term Evolution (LTE) network and the second communication network comprises one of a Code Division Multiple Access (CDMA) network and a Global System for Mobile communications (GSM) network.

16. The communication system of claim **11** wherein the session control server comprises an Internet Multimedia Subsystem (IMS) server.

17. The communication system of claim **11** wherein the session control server comprises an Internet Multimedia Subsystem (IMS) Call Session Control Functions (CSCFs).

18. The communication system of claim **11** wherein the session control server comprises Internet Multimedia Subsystem (IMS) Emergency Call Session Control Function (E-CSCF).

19. The communication system of claim **11** wherein the transfer control server comprises an Internet Multimedia Subsystem (IMS) server.

20. The communication system of claim **11** wherein the transfer control server comprises an Internet Multimedia Subsystem (IMS) Emergency Access Transfer Function (EATF).

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