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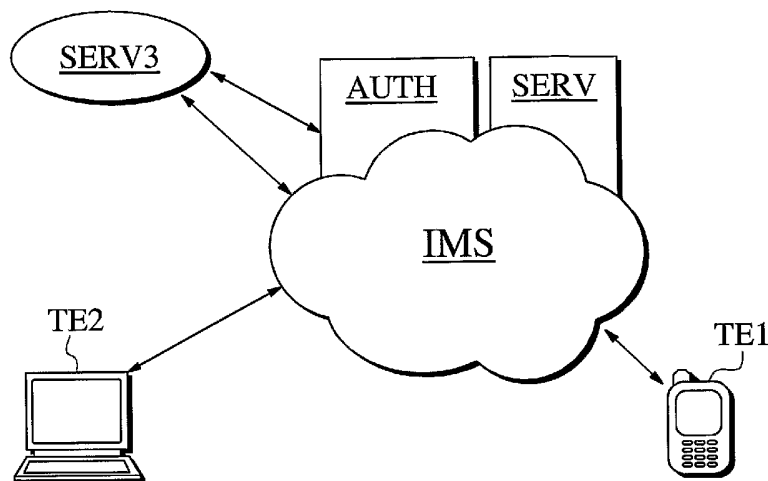
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(54) Title: METHOD, SYSTEM AND SERVER FOR TRANSFERRING A SESSION IN A DATA COMMUNICATIONS SYSTEM



(57) Abstract: A method, system and application server for transferring a service-related session. The data communications system comprises an IP multimedia access network (IMS); an authentication system (AUTH) connected to the IP multimedia access network (IMS); a first terminal (TE1), by which a user connects to the IP multimedia access network (IMS); and a second terminal (TE2), which is connected to the IP multimedia access network (IMS). The first terminal (TE1) is used for authenticating to the IP multimedia access network (IMS) and for establishing a session with a service. The second terminal (TE2) is associated with the user's information in the authentication system (AUTH), and a service session is established between the second terminal (TE2) and the service (SERV) on the basis of authentication information transmitted by the first terminal (TE1).

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**METHOD, SYSTEM AND SERVER FOR TRANSFERRING A SESSION  
IN A DATA COMMUNICATIONS SYSTEM**

**FIELD OF THE INVENTION**

5           The invention relates to transmitting  
multimedia traffic in a data communications system,  
particularly in a data communications system  
comprising a packet-switched access network for  
providing a connection for at least one terminal  
10 through one or more access points of the access  
network to one or more packet-switched data networks.  
The present invention relates to a method, system and  
application server for transferring a service-related  
session in a data communications system.

15

**BACKGROUND OF THE INVENTION**

          The convergence of data communications makes  
it possible to use different kinds of terminals in  
connection with certain services. The aim is to  
20 provide the user with a uniform user experience  
regardless of the service in order to allow the user  
to focus on the actual services and their content  
instead of learning to use the terminals.

          At present, the services used with various  
25 terminals are typically different and dependent on the  
terminal, and it has been difficult to transfer a  
connection from one terminal to another. In addition,  
separate authentication has been required between  
different types of terminals even if the same service  
30 has been used.

          Solutions which make it possible to log into  
a service using another terminal as an authentication  
means are previously known. Authentication for web  
services, for example, can be performed with a mobile  
35 terminal, either by a text message or by a WAP Push  
message. Authentication data can be transmitted over a

WAP session by a WAP Push message sent from the web service to the mobile terminal.

The problem with these solutions is nevertheless that authentication messages are separate  
5 from the web service, and a separate connection must be set up for them. In practice, there is a delay of at least 10 to 30 seconds in the authentication and the opening of the service before the service is available. This delay seriously disturbs the intuitive  
10 user experience and may lead to the user interfering with the setting up of the connection by pressing wrong buttons or by unintentionally cutting the WAP connection.

An authentication system using a mobile  
15 terminal does not enable connections between systems employing other types of connections. A completely separate system must be built, for example, for transferring a service between a digital TV and a home PC.

20 Various methods for transferring sessions between terminals or networks are previously widely known. Session Initiation Protocol (SIP) defines a procedure for transferring a session from one terminal to another. However, the method defined in standard 3G  
25 TS 23.228 v2.0.0 (2001-03), for example, does not deal with the transmission of authentication information between different parties.

The Mobile IP Protocol is used for mobility management between various IP-based connection links.  
30 In the Mobile IP Protocol, the actual IP address of a device is hidden in a separate server, and the address of the server is used for referring to the device. All traffic received at the server is transmitted to the actual IP address of the device. The IP address of the  
35 device is known only to the server, and thus it can be changed flexibly, or the server may begin to address another device.

Liberty Alliance is a cooperation body of several players that develops open standards for network identity management and identity-based services. The solution set forth by Liberty Alliance  
5 utilizes authentication performed by one terminal to a system/service for connecting other services to a given terminal.

#### 10 **OBJECT OF THE INVENTION**

The object of the invention is to obviate the aforementioned drawbacks or at least substantially alleviate them. In particular, the object of the invention is to provide a new type of method, system  
15 and application server in which a session related to a service implemented in an IP multimedia environment can be transferred from one terminal to another regardless of the type of the terminal or the protocol required. The invention facilitates user  
20 authentication to different terminals.

The invention allows a user to use for instance a mobile terminal and a home computer or a digital TV simultaneously during the same service session. The user can access the resources of a second  
25 terminal managed by him from a first terminal without separate authentication to the second terminal. Such resources can be, for example, a file system or photographs taken with a mobile phone.

If the invention is compared with the  
30 solution of Liberty Alliance, for example, the authentication made by a terminal to the IP multimedia system is utilized in the invention to connect services to terminals not registered to the IP multimedia system. The invention also allows several  
35 simultaneously registered devices to be used intelligently.

As regards the characteristic features of the invention, reference is made to the claims.

#### **BRIEF DESCRIPTION OF THE INVENTION**

5           The present invention relates to a method for transferring a service-related session in a data communications system. The data communications system comprises an IP multimedia access network and an authentication system connected to it. The IP  
10 multimedia access network refers for example to an IP Multimedia Subsystem (IMS) or a corresponding data communications network for carrying multimedia services. The invention also relates to a system provided with means to implement the method described  
15 below and its different steps.

          In addition, the data communications system comprises a first and a second terminal, of which the user uses the first one to connect to the IP multimedia access network. According to the method,  
20 the first terminal is used for authenticating to the IP multimedia access network and for establishing a session to the service. In this document, a session and a service session refer to a session related to a service or service entity that is essential to the  
25 user. The authentication method used for logging into the IP multimedia access network is not relevant to the invention but can be implemented with any known and reliable method.

          In the method according to the invention, the  
30 second terminal is associated with the user's information in an authentication system. With the information he has transmitted using the first terminal, a user authenticated to the IP multimedia access network can add a second terminal, preferably  
35 of a different type, to his user information. When the second terminal has been associated with the user, it can also be utilized in a service session. A service

session is established between the second terminal and the service on the basis of the authentication information transmitted by the first terminal.

In an embodiment of the invention, the user is identified by a user ID according to the SIP protocol. Once the user has logged into the IP multimedia access network, the PDP (Packet Data Protocol) context is active. The user may also have an active SIP session with the operator's service system.

In some embodiments of the invention, the service session can be handled in various ways. A service session can be transferred from the first terminal to the second terminal, or at least two terminals can be activated for a single service session. Supported features can be defined for various terminals for instance by establishing a set of service parameters suitable for the terminals in the authentication system. Such service parameters can be used for modifying the user interface of the service.

In another embodiment of the invention, association of a terminal with the user's information can be removed by another terminal associated with the user. This makes it possible to chain service sessions: a session started with a mobile terminal, for example, can be continued with a home computer and further with a digital TV.

The invention is suitable for many different types of services, such as computer games and communications services. A computer game, for example, can be controlled with a mobile terminal or another terminal associated with the service. A game session can be transferred for instance from a digital TV to a mobile terminal, whereby the game does not have to be discontinued even if the user has to leave a certain terminal. An example of a communications service is a netmeeting-type service, where several terminals are connected to a session.

In a preferred embodiment of the invention, the first terminal, by which the user sets up a connection to the IP multimedia access network, is connected to the access network over a wireless telephone connection, in which case the terminal is a mobile terminal, for example. The terminal can also be connected otherwise wirelessly, e.g. by WLAN, Bluetooth or infrared technologies.

The invention also relates to an application server which is to be used with an IP multimedia system and which comprises means for processing user information, such as authentication information, a service parameter of a user interface and features of at least two terminals of different types. In addition, the server comprises means for establishing a session with a service and a terminal. The service session is preferably established through the application server. According to the invention, the server comprises means for associating at least two terminals with a user's information and means for establishing a session between a second terminal and the service on the basis of the authentication information transmitted from the IP multimedia system by a first terminal. The terminals are preferably of different types.

The application server can comprise means for transferring a session between the first terminal and the service into a session between the second terminal and the service or for activating a session to a shared session between at least two terminals and the service. The server can also comprise means for removing a terminal from a shared session by another associated terminal.

The server can also function as a proxy server during a session, whereby the user interface of the service can be modified either at the server or on the basis of information transmitted by the server in

the service. The server preferably comprises means for transmitting the features of a terminal that is active in the session to the service. A terminal can also be removed from the service by means of the server, which  
5 enables chaining of sessions between different terminals. In another embodiment, the server comprises means for removing the association of a terminal with a user's information in response to a function of another terminal. In yet another embodiment of the  
10 invention, the server comprises means for controlling a computer game service or a communications service with a terminal connected to it over a session.

The present invention provides a simple way of solving messaging and service control between  
15 different terminals. This makes it possible, for example, to transmit invoicing information from a service to a terminal. The invention allows a service session to be transferred from one terminal to another. The user can thus continue to use the service  
20 regardless of his location.

The user must authenticate only once to the IP multimedia system; the association according to the invention attends to authorizing the terminals managed by the user to the service. The user does not have to  
25 resort to authentication means, which are often difficult to use, and this contributes to a uniform user experience.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

30 In the following, the invention will be described in greater detail with reference to the embodiments illustrated in the attached drawings, in which

Figure 1 is a schematic view of the operating  
35 environment of the invention,

Figure 2 is a schematic view of simplified messaging between different network elements,



Figures 3a and 3b are schematic views of simplified messaging between different network elements, and

Figure 4 is a signalling diagram of an embodiment of the invention.

#### **DETAILED DESCRIPTION OF THE INVENTION**

IMS (IP Multimedia Subsystem) is a generic service technology applied on top of the packet-switched part of GPRS (General Packet Radio Service) or UMTS (Universal Mobile Telecommunications System), for example. IMS uses the Internet Protocol (IP) for interconnecting different multimedia communications elements in the same call, for example. 3GPP (3rd Generation Partnership Project) is responsible for standardizing the IMS technology for the 3G GPRS environment. However, IMS per se is independent of the access network technology used. It can thus also be applied to WLAN (Wireless Local Area Network) or 2.5G mobile communications systems, for example.

The third-generation mobile communications network, UMTS (Universal Mobile Telecommunications Systems), makes it possible to provide new services between different terminals by means of IP addresses. The IP-based multimedia system (IMS, IP Multimedia Subsystem) is a platform developed for multimedia services. It allows information in different formats to be processed uniformly, and it also makes data transmission possible between different networks (e.g. mobile network and the Internet).

Each registered IMS user has a Private User Identity, granted by the home network operator and used for example for customer authentication, registration, management and invoicing. This user identity is used only for user authentication within the home network; it is not used in the routing of SIP messages. The user identity is a piece of permanent

user information and remains valid as long as the user is a registered customer of the home network operator. In addition to the Private User Identity, each user has one or more Public User Identities. The Public  
5 User Identity is of the form SIP-URL (sip:user@home.fi) or E.164 number (1234567), and it allows other users to identify and contact the customer.

The user can use SIP URLs or TEL URLs for  
10 connecting. The routing is implemented with SIP URI, as the setting up of the connection is based on SIP (Session Initiation Protocol). SIP is a protocol developed for a packet-switched IP network. It allows an interactive, real-time connection to be established  
15 between users. SIP enables communications between two different and/or similar terminals.

Figure 1 illustrates an IP multimedia access network IMS. In the following, the access network will also be referred to as an IMS system. A first terminal  
20 TE1 is connected to the IMS system wirelessly, e.g. over a GPRS connection. The first terminal TE1 is a mobile terminal with built-in support for IMS/SIP services. A second terminal TE2 is connected to the IMS system for example over an ADSL (Asymmetric  
25 Digital Subscriber Line) connection maintained by the operator. The second terminal TE2 is preferably also provided with support for IMS/SIP services. In the drawing, the first terminal TE1 is illustrated as a mobile terminal by way of example, whereas the second  
30 terminal TE2 is shown as a desk-top computer. However, the invention is not limited to these examples, but the terminals can be any terminals that can be connected to the system.

The IMS system is connected to an  
35 authentication system AUTH, by which the user authenticates to the IMS system in accordance with the invention. The IMS system also has a number of

services SERV connected to it, such as a push-to-talk service or a file sharing service. In addition to the IMS system, services SERV3 can also be provided by a third party. The services SERV3 are connected to the authentication system AUTH of the IMS system, whereby the services can rely on the authentication and association made.

The invention allows a user's existing, active SIP session between a mobile device and the operator's IMS system to be transferred to another device, such as a computer at the end of a fixed broadband connection. The user can also simultaneously use both a mobile terminal and a computer connected to a fixed network or a digital TV either with separate views or for transmitting information in the same service. A service SERV/SERV3 started with the first terminal TE1 can be continued without any interruptions with the second terminal TE2; only the user's own telephone number or SIP address is required for the transfer and authentication.

The user of the IMS terminal TE2 can access the resources of his terminal (e.g. file system or pictures taken with a mobile phone) for instance with a web browser without separate authentication from the second terminal TE2.

The system maintains the user's services at a SIP/application server in the IMS system, where the user is provided only with a single identity. The user can use a service with different devices, such as a mobile phone, PC or digital TV, in such a manner that it suffices to perform the authentication once with a mobile terminal or another terminal. After this, the user can transfer between different terminals or use different terminals simultaneously simply by entering his own SIP address on a given web site or in a separate application, such as sonera.net. Separate authentication, such as a username and password, is

not needed at this stage. The user's identity, the service and the service view are transferred seamlessly between the different terminals. Once the user has authenticated to the IMS system, the PDP context is open. This allows messages to be transmitted immediately to the user's terminal unlike in the WAP-Push-based implementation. The terminals do not have to be either the user's own or separately configured for the service.

10               Figure 2 illustrates the user's authentication to the IMS system according to the invention, and a session transfer between terminals. The numbered arrows illustrate the different method steps.

15               Step 21: The user connects to a web portal maintained by the operator, e.g. [www.sonera.net](http://www.sonera.net), by the web browser of a computer TE2. From this site, the user sends a request to transfer the view and/or control of his mobile terminal to his web browser, using his own public identity. The identity can be, for example, a MSISDN number or a SIP address.

20               Step 22: Having received the request, service logic SL maintained by the operator reserves the resources required and sends a session request to a telephone through the IMS network. An example of a resource is a processor that converts the telephone view or control-related information to be compatible with the web browser.

30               Step 23: The mobile terminal TE1 receives the session request and informs the user of the request received from the web browser to transfer the view/control to the web browser.

35               Step 24: The user accepts the session request, after which the mobile terminal TE1 reserves the resources required for transferring the view/control and sends an acknowledgement request to the service logic through the IMS network.

Step 25: The service logic SL maintained by the operator receives the acknowledgement request and transmits the acknowledgement to the plug-in application of the web browser. After this, the  
5 service logic SL starts the reserved processor/converter.

Step 26: The plug-in application of the web browser receives the acknowledgement request and starts the transmission/reception processors required  
10 for presentation of the view/control of the mobile terminal TE1.

Step 27: The view/control information is transmitted through the operator's service logic from equipment to other equipment.

Figure 3a illustrates steps 28 and 29, where the service logic SL maintained by the operator can send the mobile terminal TE1 information related to the transfer session (e.g. invoicing information) or an enquiry to terminate the transfer session, if the  
20 session has lasted for a long time without any activity.

Figure 3b illustrates the removal of a terminal from association. Step 30: The user cuts an existing transmission connection using the mobile  
25 terminal TE1. Step 31: The mobile terminal TE1 releases the reserved resources and sends a session termination request to the service logic SL through the IMS system. The service logic SL receives the request and, as a result of it, releases the reserved  
30 resources and transmits the request to the plug-in application of the web browser. Step 32: The plug-in application of the web browser terminates the session and releases the reserved resources.

From the user's perspective, the functions  
35 can also be described as follows: At first, the user authenticates to the IMS system with a mobile terminal, e.g. Nokia's N-Gage gaming device. The user

begins to play and, after a while, starts a session transfer to a digital TV by logging into a service site, e.g. the address sonera.net, using the digital TV. Information on the equipment, e.g. on the size of the screen, is transmitted at the same time. The user does not authenticate separately at this stage but enters his own SIP address (e.g. sip: harri@sonera.net). The SIP address can be predefined in the settings, in which case the user only has to select the suitable option in the menu, e.g.: "Go to Sonera Game World".

The transfer request is transmitted to the mobile terminal, which receives the notification "You are about to log into Sonera's service, OK?". The user accepts the selection by pressing OK, whereby the digital TV access is linked to the IMS login and authentication performed through the mobile phone.

Thanks to the IMS system, the operator and thereby also service providers have the screen and controls of both a digital TV and a mobile phone simultaneously in their use in the same service. Service functionality transfers can be performed freely. By clicking the text "Transfer N-Gage game view to digital TV", which can be shown to the user, the user can see the mobile game view on his digital TV. The game can be controlled with a mobile terminal in such a manner that the control commands are routed through the operator and the game view is provided by the larger digital TV screen.

The same view can still be shown on the mobile terminal screen or, alternatively, some other game-related information, e.g. scores or a different view, can be displayed there.

The system and the application server according to the invention comprise means for managing terminal features. A multimedia service can include, for example, a state machine, which stores information

on screen features and on any other screens and controls. A digital TV can be recorded as having a large screen but no controls; a mobile terminal can be recorded as having a web screen and game control features, and a home computer can be recorded as having, for example, a web screen and a keyboard. Different terminals can thus have different screen and control features but the same login to the IMS system and association with the same identity. The states of a state machine can be changed according to the requirements of the service. The state machine actively transmits information to the systems and services and to the user.

Figure 4 shows a signalling diagram related to the service. The elements of the signalling diagram are the browser BRWSR of a home computer, a service portal PORTAL, a call session control function P/I/S-CSCF (Proxy/Interrogating/Serving - Call Session Control Function), and a first terminal TE1. The signalling is divided into blocks referred to in the following.

Block 410: The user enters the portal PORTAL, which directs the session further to the confirmation page.

Block 420: The user enters his own SIP address or E.164 number in order to confirm his login performed with another terminal.

Block 430: The user accepts the session invitation in order to confirm authentication. At this stage, the user does not submit any personal passwords or other secret authentication information.

Block 440: A cookie, for example, is transmitted to indicate that the identity has been verified. The following browser request contains this cookie. Such a cookie is an auxiliary file of a web browser, and the information it contains can be used for controlling the connection between the browser and

a server. After this step, the user has an access right to the protected sites of the portal.

Block 450: A ticket (CDR, Call Detail Record) is generated for the processing of invoicing  
5 information.

Block 460: Invoicing information related to the service, for example, is transmitted.

Block 470: The user terminates, for example, the web session used. This step can also be sent in  
10 reverse order, in which case the user is informed of the termination of the session.

The above means are implemented with means known per se, e.g. with software components, wherefore they will not be described in greater detail. The  
15 invention is not limited merely to the above embodiments but can be varied within the scope of the inventive idea of the invention.



**CLAIMS**

1. A method for transferring a service-related session in a data communications system comprising:
- 5 an IP multimedia access network (IMS);  
an authentication system (AUTH) connected to the IP multimedia access network(IMS);  
a first terminal (TE1), by which a user  
10 connects to the IP multimedia access network (IMS);  
and  
a second terminal (TE2), which is connected to the IP multimedia access network (IMS), said method comprising;
- 15 authenticating to the IP multimedia access network (IMS) with the first terminal (TE1); and  
establishing a session to a service (SERV) with the first terminal (TE1), c h a r a c t e r -  
i z e d in that the method further comprises the  
20 following steps:  
associating the second terminal (TE2) with the user's information in the authentication system (AUTH);  
establishing a service session between the  
25 second terminal (TE2) and the service (SERV) on the basis of authentication information transmitted by the first terminal (TE1).
2. A method according to claim 1, c h a r a c t e r i z e d by identifying the user by means of  
30 a user ID according to the SIP protocol.
3. A method according to claim 1 or 2, c h a r a c t e r i z e d by transferring the service session from the first terminal (TE1) to the second terminal (TE2).
- 35 4. A method according to claim 1 or 2, c h a r a c t e r i z e d by activating at least two terminals (TE1, TE2) for a single service session.

5. A method according to claim 1 or 2, characterized by establishing a set of service parameters suitable for at least two terminals (TE1, TE2) in the authentication system (AUTH).

5 6. A method according to claim 5, characterized by modifying the user interface of the service (SERV) by means of a service parameter.

7. A method according to any one of claims 1 to 6, characterized by removing the association of a terminal with the user's information by another associated terminal.

8. A method according to any one of claims 1 to 7, characterized in that the service (SERV) is a computer game.

15 9. A method according to any one of claims 1 to 7, characterized in that the service (SERV) is a communications service.

10. A method according to claim 8 or 9, characterized in that the service (SERV) is controlled by a terminal associated with the service (SERV).

11. A method according to any one of claims 1 to 10, characterized in that the first terminal (TE1) is used over a wireless telephone connection.

12. A system for transferring a service-related session in a data communications system comprising:

an IP multimedia access network (IMS);

30 an authentication system (AUTH) connected to the IP multimedia access network (IMS);

a first terminal (TE1), by which the user has been authenticated and connected to the IP multimedia access network (IMS); and

35 a second terminal (TE2), which is connected to the IP multimedia access network (IMS);

a service (SERV), to which the first terminal (TE1) has established a session, characterized in that the system comprises:

5 means for associating the second terminal (TE2) with a user's information; and

means for establishing a session between the second terminal (TE2) and the service (SERV) on the basis of authentication information transmitted by the first terminal (TE1).

10 13. A system according to claim 12, characterized in that a user ID according to SIP protocol has been defined for the user.

15 14. A system according to claim 12 or 13, characterized in that the system comprises means for transferring a session from the first terminal (TE1) to the second terminal (TE2).

20 15. A system according to claim 12 or 13, characterized in that the system comprises means for activating at least two terminals (TE1, TE2) for a single service session.

25 16. A system according to claim 12 or 13, characterized in that a set of service parameters suitable for at least two terminals (TE1, TE2) has been established in the authentication system (AUTH).

30 17. A system according to claim 16, characterized in that the system comprises means for modifying the user interface of the service (SERV) by means of a service parameter.

35 18. A system according to any one of claims 12 to 17, characterized in that the system comprises means for removing the association of a terminal with a user's information by another terminal.

19. A system according to any one of claims 12 to 18, characterized in that the service (SERV) is a computer game.

5 20. A system according to any one of claims 12 to 18, characterized in that the service (SERV) is a communications service.

21. A system according to claim 19 or 20, characterized in that the system comprises means for controlling the service (SERV) by  
10 a terminal associated with the service.

22. A system according to any one of claims 12 to 22, characterized in that the first terminal (TE1) is suitable for use over a wireless telephone connection.

15 23. An application server to be used in connection with an IP multimedia system, said application server comprising:

means for processing user information, such as authentication information, a service parameter of  
20 a user interface and features of at least two terminals (TE1, TE2) of different types; and

means for establishing a session with a service (SERV) and a terminal, characterized by further comprising;

25 means for associating at least two terminals (TE1, TE2) with a user's information; and

means for establishing a session between a second terminal (TE2) and the service (SERV) on the basis of authentication information transmitted from  
30 the IP multimedia system (IMS) by a first terminal (TE1).

24. A server according to claim 23, characterized by comprising means for transferring a session between the first terminal  
35 (TE1) and the service (SERV) into a session between the second terminal (TE2) and the service (SERV).

25. A server according to claim 23, characterized by comprising means for activating a session between the first terminal (TE1) and the service (SERV) to a shared session between at least two terminals (TE1, TE2) and the service (SERV).

26. A server according to claim 23 or 25, characterized by comprising means for removing a terminal from a shared session by another associated terminal

27. A server according to claim 23, characterized by comprising means for transmitting the features of a terminal that is active in the session to the service.

28. A server according to claim 23, characterized by comprising means for removing the association of a terminal with a user's information in response to a function of another terminal.

29. A server according to claim 23, characterized by comprising means for controlling a computer game service with a terminal connected to it over a session.

30. A server according to claim 23, characterized by comprising means for controlling a communications service with a terminal connected to it over a session.

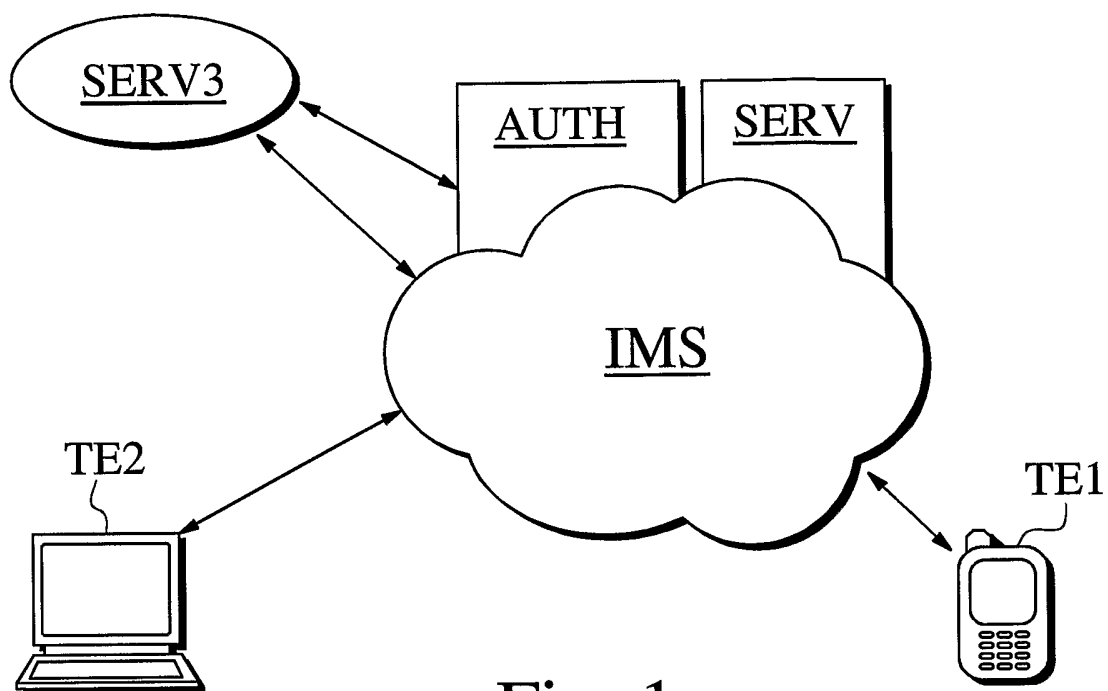


Fig. 1

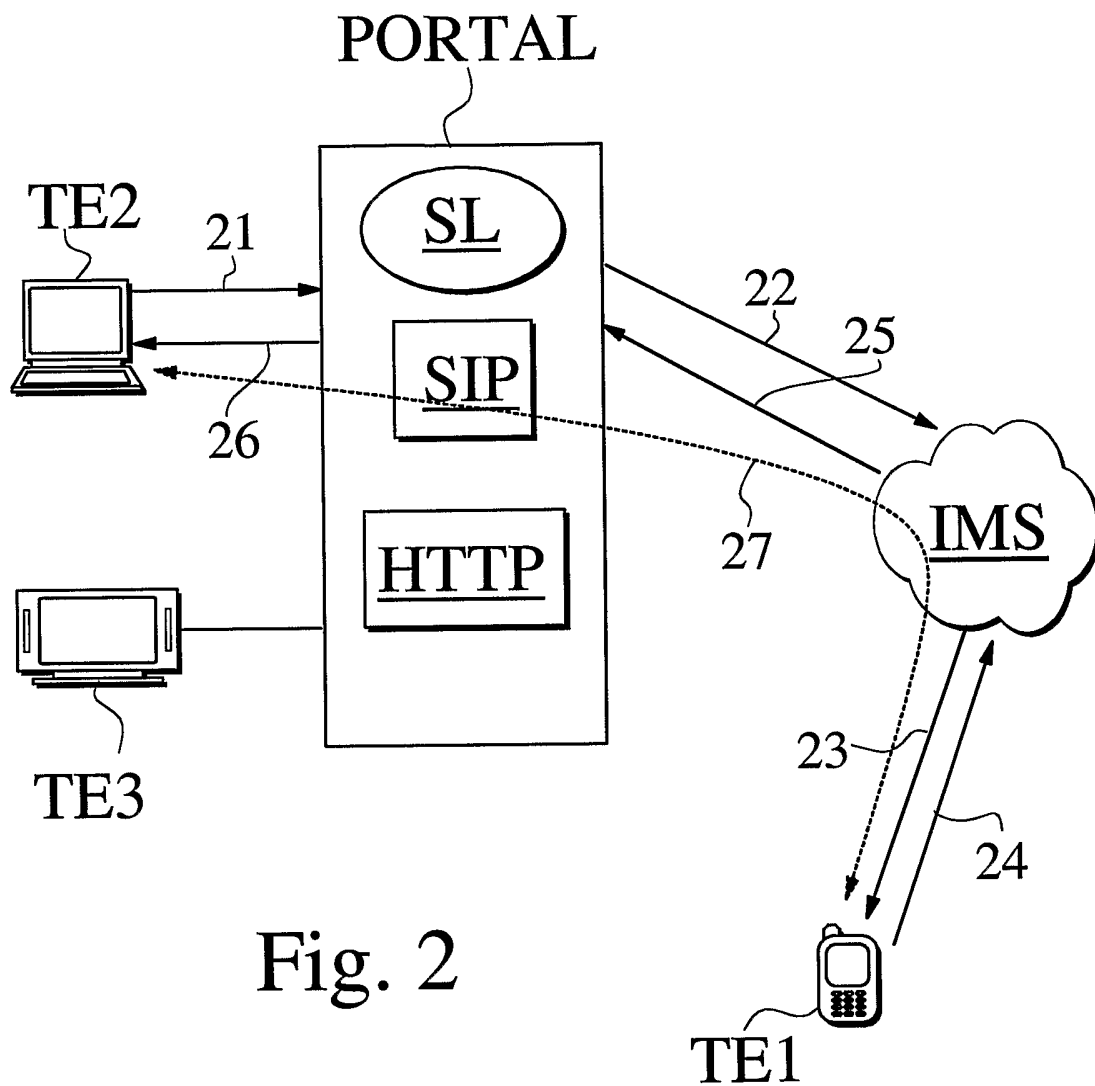


Fig. 2

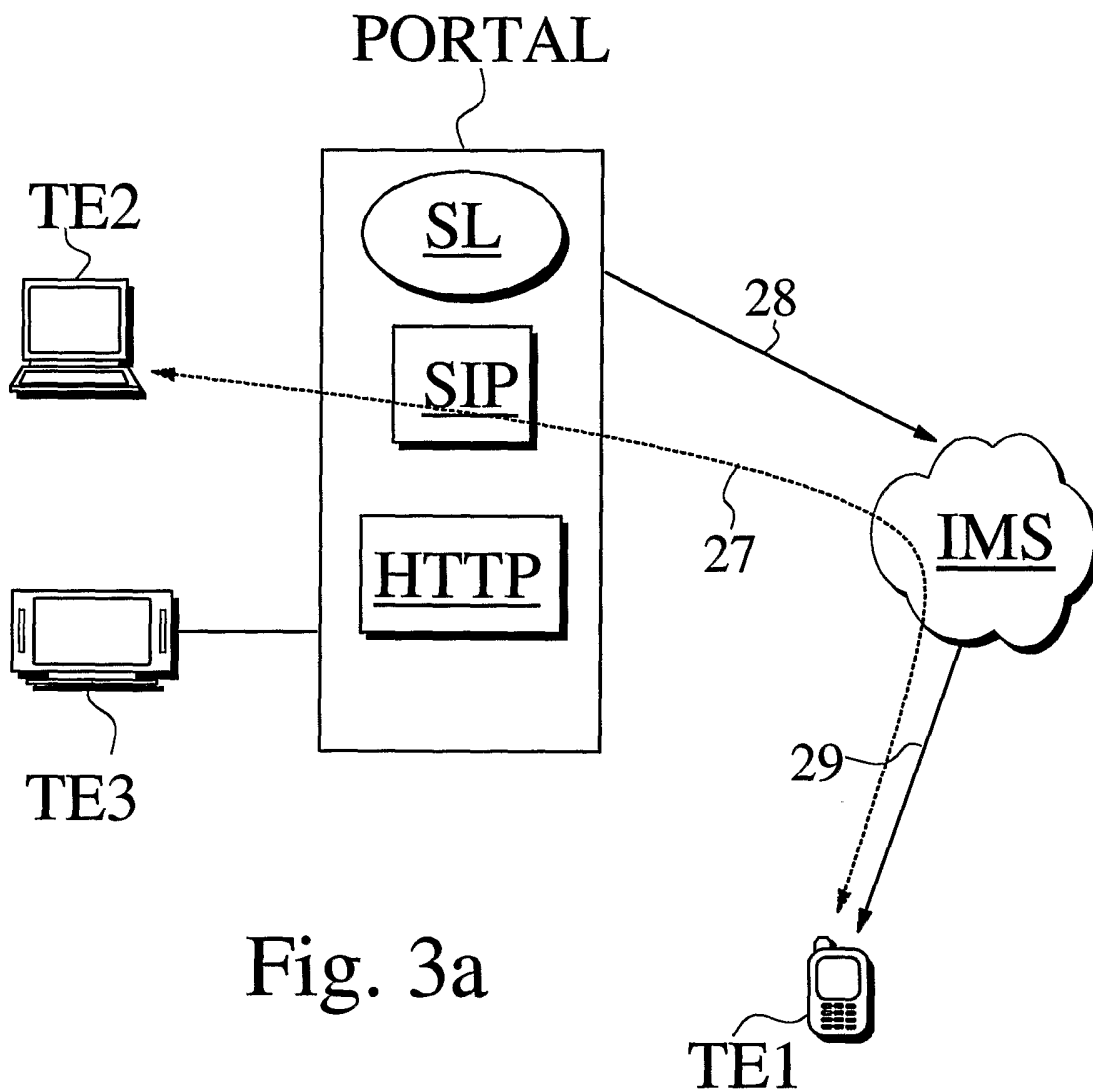


Fig. 3a



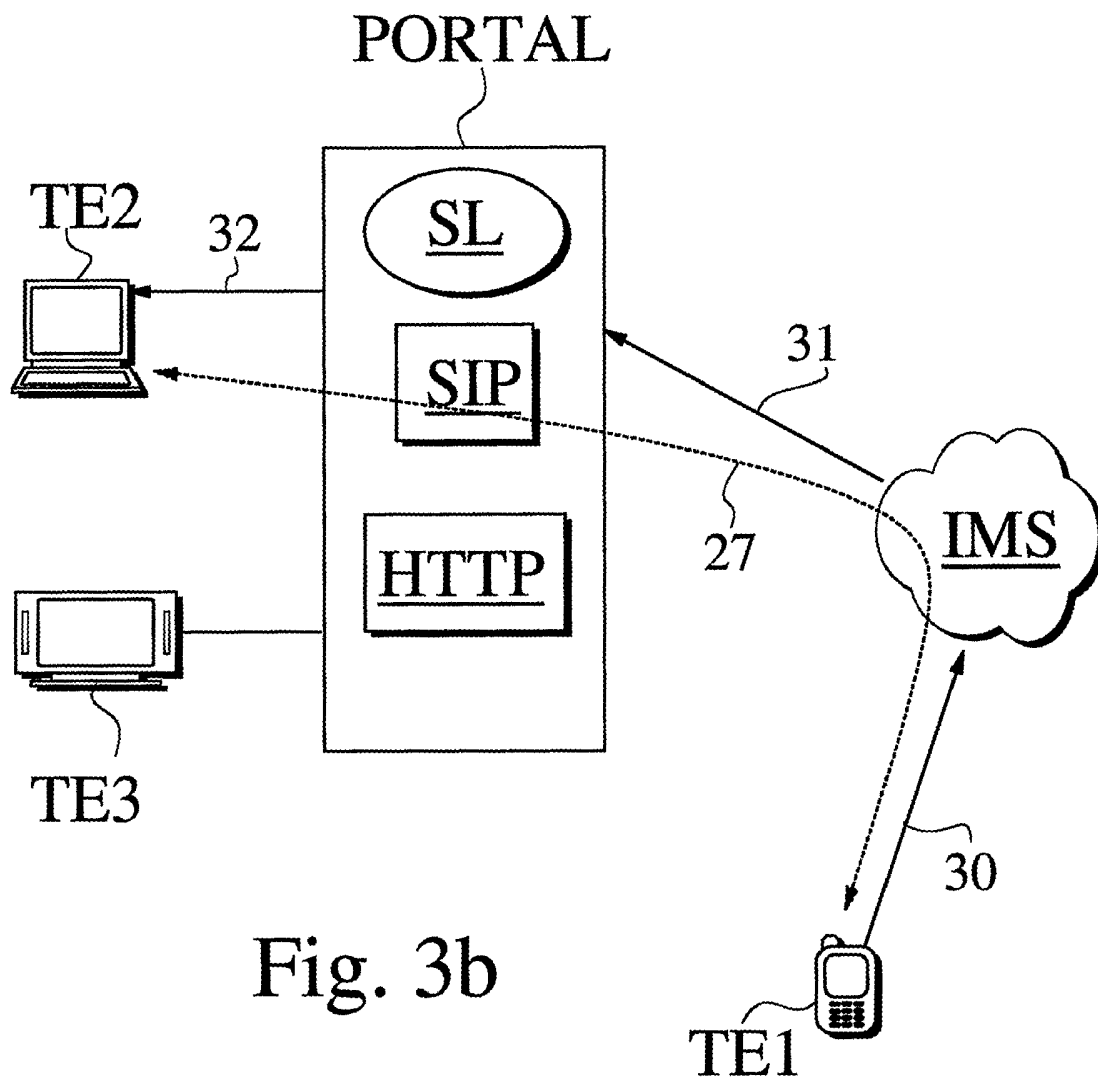


Fig. 3b

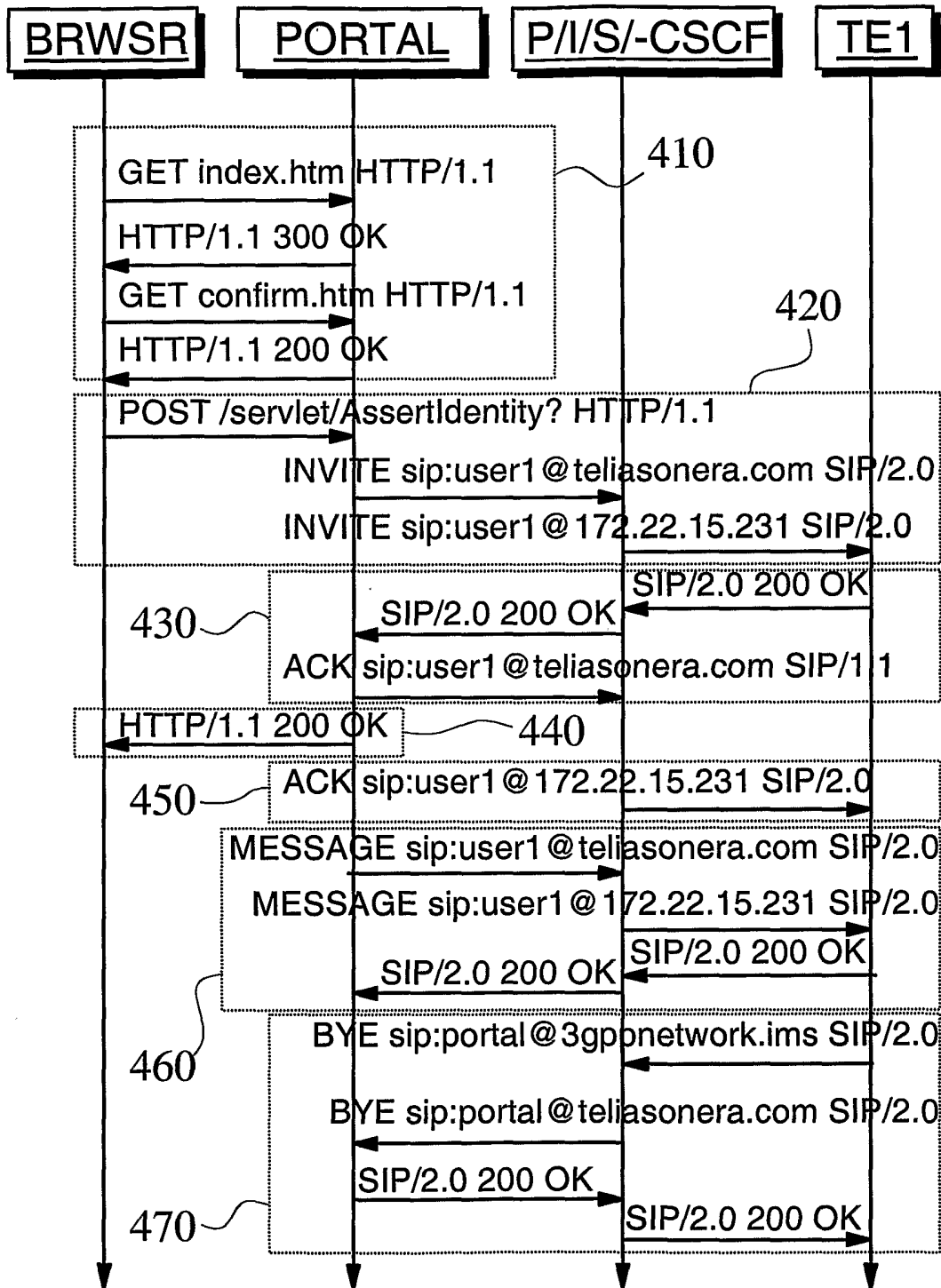


Fig. 4

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/FI2005/000294A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04L29/06

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

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H04L

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

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

EPO-Internal, WPI Data, INSPEC, IBM-TDB

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 330 098 A (BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY) 23 July 2003 (2003-07-23)  paragraph '0006! - paragraph '0031!	1,3-7, 9-12, 14-18, 20-28,30
A		2,8,13, 19,29
A	EP 1 315 394 A (TELIASONERA FINLAND OYJ; SONERA OYJ) 28 May 2003 (2003-05-28) paragraph '0006! - paragraph '0007! paragraph '0013! paragraph '0034! - paragraph '0037!	1-30

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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Date of the actual completion of the international search

25 October 2005

Date of mailing of the international search report

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Raposo Pires, J

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/FI2005/000294
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