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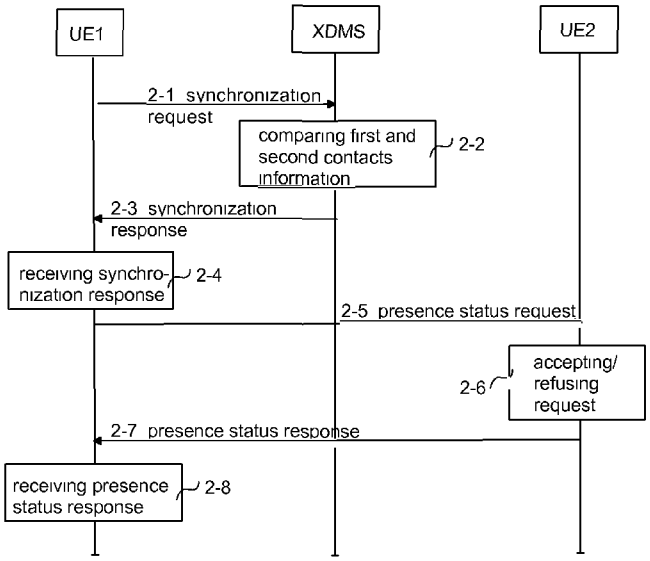
(54) Title: MANAGING PRESENCE SERVICE INFORMATION IN COMMUNICATIONS SYSTEM



(57) Abstract: In the invention, a first user terminal (UEl) maintains contacts information on a second user terminal (UE2), and a contacts server (XDMS) maintains contacts information on user terminals (UE2) that are capable of using a presence service and that allow provision of their presence information to the first user terminal (UEl). The contacts information stored in the contacts server (XDMS) is compared (2-2) with the contacts information stored in the first user terminal (UEl). If the contacts information stored in the contacts server (XDMS) in- eludes contacts information on the second user terminal (UE2), the first user terminal (UEl) is notified of this, wherein the contacts information in the first user terminal (UEl) and the contacts information in the contacts server (XDMS) can be synchronized to each other.

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MANAGING PRESENCE SERVICE INFORMATION IN COMMUNICATIONS SYSTEM

FIELD OF THE INVENTION

The present invention relates to providing a presence service, and more particularly to a method for managing presence service information in a communications system.

BACKGROUND OF THE INVENTION

In computer and telecommunications networks, presence information refers to a status indicator that indicates an ability and/or willingness of a potential communication partner (such as another user) to communicate. The user's presence information is provided to a presence service, and the presence information is stored in an availability record (so called "presentity") that may be available for distribution to other users. The user's presence information may be utilized in various communication services such as instant messaging (IM) and/or Voice over IP (VoIP). User's availability states may include descriptions such as "free for chat", "busy", "away", "do not disturb", "out to lunch". Current systems may support several additional presence attributes for the presence information such as attributes for user mood and/or location. A free text status may also be available. Usually, the presence service deals with the availability of an actual device or its user. By means of the presence service, a calling party is able to decide if s/he wishes to postpone or cancel the call, or perhaps start the communication in another way. The presence service allows a first user to find out, if a state of a second user is free or busy, even before trying to call the second user.

Instant messaging is a form of real-time communication between two or more users, based on typed text. The text is transmitted by means of mobile stations or personal computers over a network, such as the Internet. Instant messaging enables subscribers to exchange online messages via the Internet. Instant messaging may involve a presence information feature indicating whether users included in someone's contacts information are currently online and available to chat. Instant messaging applications may also include an ability to set a status message resembling a message in a telephone answering machine. Examples of existing instant messaging services in the Internet include .NET Messenger Service, AOL Instant Messenger, Damaka, Excite/Pal, Gadu-Gadu, Google Talk, iChat, ICQ, Jabber, Qnext, QQ, Skype,

Yahoo! Messenger, and an online chat medium known as Internet Relay Chat (IRC).

User terminals that include mobile instant messaging capabilities are able to use instant messaging and presence services provided by a carrier network. For example, in a Wireless Village based presence client, if a first user wishes to get presence information on a second user, the first user enters or selects the second user's Wireless Village identification. If the first user does not know the second user's Wireless Village identification, the first user may try to subscribe to the presence information using an MSISDN (Mobile subscriber international ISDN number) of the second user. A network presence server receives the MSISDN and tries to match it with the Wireless Village id's. If a user with the MSISDN in question is found, presence information on the second user is provided to the first user. If there is no match, the network presence server returns an error.

Another example is a video share application. If the first user wishes to share a video with the second user, a SIP-URI (Session initiation protocol uniform resource identifier) of the second user is used for identification. If the first user does not know the SIP-URI of the second user, the application creates a SIP-URI by means of the MSISDN (e.g. MSISDN@somedomain.com) of the second user. If the created SIP-URI is not recognized in the system, the video cannot be shared between the first and the second user.

Thus, a problem associated with the above arrangements is that they are "manual" solutions. The first user is not able to find out whether the second user is a user of the application or the presence service (e.g. does the second user have necessary applications/clients in his/her terminal). Thus, users do not know with whom they can share their presence (status) information, but they have to do the checking "manually" (by try-and-error), without knowing that the other user is using the presence service.

BRIEF DESCRIPTION OF THE INVENTION

An object of the present invention is thus to provide a method, a communications system, a network subsystem and a user terminal for implementing the method so as to solve the above problem. The objects of the invention are achieved by a method and an arrangement which are characterized by what is stated in the independent claims. Preferred embodiments of the invention are disclosed in the dependent claims.

The invention is based on an idea of maintaining contacts information in a network element (such as an XDMS system) in order to find out if any of a first user's contacts is a user of a presence service. Therefore, the first user terminal stores contacts information on other users (e.g. on a second user terminal), and the network subsystem maintains contacts information on other user terminals that are capable of using the presence service and that allow provision of their presence information to the first user terminal. The contacts information stored in the network subsystem is compared with the contacts information stored in the first user terminal. If contacts information on the second user terminal is included in the contacts information stored in the network subsystem, the first user terminal is notified of this.

An advantage of the method and arrangement of the invention is that it automates the finding of other users from the IMS system. The invention allows a user to find other users, e.g. his/her friends, in the IMS system, in order to communicate with them by using IMS services. The user does not have to "guess" whether his/her friend is able to use the presence service or not.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following the invention will be described in greater detail by means of preferred embodiments with reference to the accompanying drawings, in which

Figure 1 is illustrates a communications system according to the present solution;

Figure 2 is a signalling chart illustrating a method according to the present solution;

Figure 3 is a flow chart illustrating the functioning of a network element according to the present solution;

Figure 4 is a flow chart illustrating the functioning of a first user terminal according to the present solution.

DETAILED DESCRIPTION OF THE INVENTION

In the following, preferred embodiments of the invention will be described with reference to a third generation mobile communications system, such as the UMTS (Universal Mobile Communications System). However, this invention is not meant to be restricted to these embodiments. Consequently, the invention may be applied in any cellular communications system that provides GPRS-type packet switched radio service capable of transmitting packet-

switched data. Examples of other systems include the IMT-2000 and its evolution techniques (such as Beyond-3G including LTE (3.9G) and 4G). The specifications of mobile communications systems advance rapidly. This may require additional changes to the invention. For this reason, the terminology and the expressions used should be interpreted in their broadest sense since they are meant to illustrate the invention and not to restrict it. The relevant inventive aspect is the functionality concerned, not the network element or equipment where it is executed.

An IP multimedia subsystem (IMS) is a telecommunications network subsystem providing IP multimedia services that complement the services provided by mobile networks. The IMS provides a support for IP multimedia applications within 3G and Beyond-3G mobile systems, and thus enables mobile network operators to offer multimedia services based on Internet applications, services and protocols. These protocols include a Session initiation protocol SIP, which is used to manage IP multimedia sessions. Users of the IMS technology may utilize applications like presence services, interactive applications, content sharing and real-time video. Push-to-talk connections are also based on the IMS technology. Any network supporting the IP protocol may be utilized in the IMS technology. Examples of such networks include GPRS (General packet radio service), WCDMA (Wideband code division multiple access), WLAN (Wireless local area network) and B-ISDN (Broadband integrated services digital network) networks. The IMS technology also enables a solution where a local IP multimedia resource, such as a multimedia PC (personal computer) connected to the Internet, is reserved and controlled by means of a user terminal, such as a mobile station connected to the IMS network.

Figure 1 illustrates a communications system S according to the present solution. Referring to Figure 1, the system S comprises at least one user terminal UE1 , UE2 that may be a mobile terminal, such as a mobile phone, PDA, laptop or the like, for supporting incoming and/or outgoing IP multimedia sessions. The system S further comprises an IP network, such as the Internet, and a core network CN including a core network subsystem, such as an IP multimedia subsystem IMS. The core network further includes a contacts server (such as an XML (Extensible markup language) document management server XDMS) and a presence server PS. UE1 and UE2 are able to connect to the IMS, and the IMS is able to connect to the Internet. The IMS is connected to the contacts server XDMS and to the presence server PS. XDMS may fur-

ther include an Automation feature AF. Figure 1 shows a simplified version of a mobile communications system, which illustrates only the components that are essential to illustrate the invention, even though those skilled in the art naturally know that a general mobile communication system also comprises other functions and structures, which do not have to be described in more detail herein.

Figure 2 illustrates signalling according to an embodiment of the present solution. Referring to Figure 2, when a first user starts to use the terminal and/or the presence service for the first time, a synchronization request 2-1 is transmitted from a first user terminal UE1 to XDMS. The synchronization request includes first contacts information on at least one other user, stored in the first user terminal UE1. The first contacts information may be, for example, in the form of telephone numbers and/or email addresses. In step 2-2, the synchronization request is received in XDMS. XDMS is arranged to maintain second contacts information comprising a list of other users (if any) of the presence service that allow UE1 to receive presence information on them. The second contacts information may be, for example, in the form of MSISDN's and/or SIP-URI's, and the list may be subscriber-specific (i.e. personal) for UE1. According to the present solution, the core network CN includes a function (e.g. the contacts server XDMS) that is arranged to go through, in step 2-2, the second contacts information in order to try to match said first contacts information with said second contacts information (e.g. XDMS tries to match an email address with a corresponding SIP-URI). If a match between the first contacts information and the second contacts information is made (i.e. XDMS has found at least one second user who is using the IMS application in question and who allows the first user terminal UE1 to be provided with the second user's presence information), XDMS is arranged to transmit a notification 2-3 to the first user terminal UE1, informing UE1 of the at least one second user. Information on the matches (=synchronized contacts information) may be stored 2-2 in IMS. In step 2-4, the notification is received in UE1, and UE1 is arranged to store information on the match(es) made (i.e. UE1 is arranged to store 2-4 information (=synchronized contacts information) on said at least one second user). If no match was made, UE1 may receive 2-4 a notification 2-3 from XDMS, informing that there was no match.

If a match was made, the synchronized contacts information enables UE1 to try to create a bond (in other words, to share presence status

information) with the second user terminal UE2. If the first user wishes to try to contact the second user, a status request can be sent from UE1 to UE2 in a message 2-5. In step 2-6, the status request is received in the second user terminal UE2, the request indicating that UE1 would like to receive UE2's presence status information. The request may either be accepted or rejected in UE2 in step 2-6. If the request is accepted in UE2, UE2 is arranged to transmit 2-7 its status information (i.e. presence information) to UE1 . In step 2-8, UE2's status information is received in UE1 . If the status information indicates that the second user is currently available, UE1 and UE2 may start an IMS application session (such as instant messaging) with each other in a usual manner (not shown in Figure 2). If the status information indicates that the second user is currently not available, the user of UE1 is able to decide whether to cancel the IMS session, or try again later by retransmitting message 2-5. If the request is rejected 2-6 by UE2 (e.g. the second user has decided not to share his/her presence information with UE1), a notification of this may be sent 2-7 from UE2 to UE1 , and thus in this case UE1 is not able to receive UE2's presence information.

Synchronization of contacts information may also be carried out when the first user updates the first contacts information stored in UE1 (e.g. when the first user adds, deletes and/or modifies information on a telephone number and/or an email address of the second user). In that case, an update request message 2-1 is transmitted from UE1 to XDMS, including updated first contacts information. In step 2-2, the update request is received in IMS. IMS is then arranged to go through, in step 2-2, the second contacts information in order to try to match the updated first contacts information with the second contacts information. If a match between the updated first contacts information and the second contacts information is made, XDMS is arranged to transmit a notification 2-3 to the first user terminal UE1 , informing UE1 of the match. Information on the matches (=synchronized contacts information) is stored in XDMS. In step 2-4, the notification is received in UE1 , and UE1 is arranged to store information on the match(es) made (=synchronized contacts information).

In the situation of Figure 2 , it may be assumed that UE2 has first synchronized its contacts information to the contacts server (before step 2-2).

The first user may add new contacts to a "contacts book" in UE1 . The idea is that the contacts book in UE1 synchronizes its contacts to the network (e.g. to the XDMS). XDMS includes a function that goes through the con-

tacts in UE1 contacts book and finds out if any of the contacts in the UE1 contacts book are included in XDMS as well (i.e. if they are users in the system). If any of added contacts is a user in the system, the function sends a message to UE1 , notifying UE1 of the match. The notification may be displayed by UE1 to the first user. The first user may then try to get presence information on the found contact (by using a subscribe mechanism in the IMS system).

The IMS system is connected to a contacts server that stores contacts information (SIP URI's and MSISDN's). The contacts server includes, for example, an XDMS server according to OMA (Open mobile alliance) specifications. The user terminal UE1 includes a client that is arranged to synchronize its contacts information to the XDMS server. The synchronization is carried out for the first time, for example, when the user starts the user terminal and/or starts to use the presence service, and reoccurs when the user updates the contacts information in the user terminal (via a connection between the user terminal and the XDMS server).

The contacts server may further include an automation feature AF for finding the first user's "friends" from the second contacts information. Whenever new contacts information is synchronized by UE1 to the contacts server, AF is arranged to go through a contacts database stored in the contacts server and find out whether a second user found in the user's contacts information is a user of the presence service. If match is made, the first user is notified that s/he has a potential "friend" (or friends) in the system, and s/he can be asked whether s/he would like to try to build a "friend relationship" with the second user (to see the presence information). The notification from the automation feature AF to UE1 may be transmitted as a SIP message (via a call state control function (not shown in the figures) or directly from AF).

If the first user decides to ask the second user to be the first user's friend, a status request is transmitted from the first user terminal UE1 to the second user terminal UE2 (via the IMS system). If the second user agrees to have a friendship relation with UE1 , UE1 and UE2 may share their presence information with each other.

In the following, an exemplary use case is disclosed. It is assumed that Joan has a new SurfPort mobile phone that includes an integrated Rolodex functionality. Joan inserts her SIM (Subscriber identity module) card into the phone and synchronizes her first contacts information to the operator network as described above. The network recognizes that Joan has Bob in her

first contacts information, and that Bob is user of the presence service. Joan is asked whether she would like to be Bob's friend. Joan selects yes, and Bob is sent an invitation to be Joan's friend. If Bob selects yes, the invitation is accepted. Now Joan is able to see Bob's presence information and Bob is able to see Joan's presence information.

The present solution comprises means for storing information on whether a user wishes to be found (by other users) and/or whether the user is using a presence service. Thus, when synchronizing a user's contacts information (first contacts information) to the information stored in the contacts server (second contacts information), the contacts server (e.g. XDMS and/or AF) is able to go through the information in order to find out whether the user's friends are also using the presence service. The user has the first contacts information stored in his/her mobile equipment or SIM card. The user may start to use an IMS application for the first time by inserting a SIM card to the mobile equipment and/or by downloading a specific contacts client provided by the network operator (e.g. in the Internet), wherein the downloaded client replaces an original contacts application included in the mobile equipment, with a new contacts application. When the new contacts application is opened for the first time, it connects the user terminal to XDMS and synchronizes the user's contacts information to the contacts information stored in XDMS. XDMS comprises means for scanning the contacts information and matching the information to users of the system. XDMS provides a notification to the contacts client whether a match was made (i.e. a "friend" was found), and UE1 may then try to subscribe to the friend's presence information and then establish a connection with the friend.

According to an embodiment, the user terminal comprises a client trying to subscribe to every contact found in a user-specific contacts list stored in XDMS.

According to another embodiment, instead of or in addition to IMS, XDMS and/or AF, operations of the present solution may be carried out in any other network subsystem or network element. The existence of IMS, XDMS, PS and/or AF in the system is not mandated by the present solution, but operations of the present solution may be carried out in any other network subsystem or network element that includes a presence server and/or a contacts server, wherein the automated facility according to the present solution has

been built in connection with the contacts server. For example, it should be noted that the comparing step 2-2 may be carried out in UE1 .

Figure 3 is a flow chart illustrating the functioning of a network element (such as XDMS) according to an embodiment of the present solution. Referring to Figure 3, a synchronization request is received from a first user terminal UE1 in step 3-1 . The synchronization request includes first contacts information on at least one second user. The first contacts information may be, for example, in the form of telephone numbers and/or email addresses. XDMS is arranged to maintain second contacts information comprising a list of other users (if any) of the presence service that allow UE1 to receive presence information on them. The second contacts information may be, for example, in the form of MSISDN's and/or SIP-URI's, and the list may be specific (i.e. personal) for UE1 . According to the present solution, XDMS has a function that is arranged to go through, in step 3-2, the second contacts information in order to try to match said first contacts information with said second contacts information (e.g. it tries to match an email address with a corresponding SIP-URI). If a match between the first contacts information and the second contacts information is made (i.e. XDMS has found at least one second user who is using the IMS application in question and who allows the first user terminal UE1 to be provided with the second user's presence information), XDMS is arranged to transmit 3-3 a notification to the first user terminal UE1 , informing UE1 of the at least one second user. Information on the matches (=synchronized contacts information) may be stored in XDMS. If no match was made, a notification may be sent 3-3 to UE1 , informing that there was no match.

Figure 4 is a flow chart illustrating the functioning of a first user terminal UE1 according to an embodiment of the present solution. Referring to Figure 4, a synchronization request is transmitted 4-1 from the first user terminal UE1 to a core network subsystem (such as XDMS). The synchronization request includes first contacts information on at least one second user, stored in the first user terminal UE1 . The first contacts information may be, for example, in the form of telephone numbers and/or email addresses. In step 4-2, UE1 receives a notification of this from XDMS that a match between the first contacts information and second contacts information (stored in XDMS) has been made. Information on the matches may be stored in UE1 (i.e. UE1 is arranged to store information (=synchronized contacts information) on a second user (if any) who is a user of the presence service and who allows UE1 to re-

ceive presence information on him/her). If no match was made, UE1 may receive 4-2 a notification from XDMS, informing that there was no match.

If a match was made, the synchronized contacts information enables UE1 to create a bond (in other words, to share presence status information) with the second user terminal UE2. If the first user wishes to try to contact the second user, a status request is sent 4-3 from UE1 to UE2. If the request is accepted by UE2, UE1 receives 4-4 UE2's status information (i.e. presence information). If the status information indicates that the second user is currently available, UE1 may start an IMS application session (such as instant messaging) with UE2 in a usual manner (not shown in Figure 4). If the status information indicates that the second user is currently not available, the user of UE1 is able to decide whether to cancel the IMS session, or try again later (according to steps 4-3 and 4-4). If the request is rejected, a notification of this may be received 4-4 from UE2. The presence status information on UE2 is stored, for example, in the presence server PS, wherein UE1 receives the presence status information on UE2 from PS via IMS.

The presence server and the contacts server are application servers that are preferably implemented as separate entities. The functions of XDMS include maintaining users' contacts list, groups (e.g. for PoC) and/or configuration data (e.g. authorization data used in presence services). The functions of PS include delivering status information between user terminals. The presence server and the contacts server may or may not be a part of the IMS system. The user terminals may communicate directly with XDMS (by utilizing XCAP (XML configuration access protocol)), and with PS via IMS (by utilizing SIMPLE (SIP for instant messaging and presence leveraging extensions) protocol).

In this context, the term "synchronisation" refers to a process used to make the contents of specific files identical on different devices or network elements. For example, a user may wish to synchronise his/her phonebook stored in the mobile device to the contacts information stored in the network.

The present solution enables the first user to be notified if his/her friends are in the system and/or if they later become members of the system. The present solution enables the first user to create a relation (to allow the first user to see the second user's presence information and vice versa), in order to start a communication with the second user by using an IMS application. The invention further enables users to find out how they can communicate with

their friends, i.e. the invention enables users to find out which services their friends have.

The synchronization and/or updating procedures described above may be carried out as a response to an action by the user of the first user terminal or as a response to an action by the user terminal, network subsystem, or communications system. Examples of actions by the user include when the user terminal is switched on, or when a new contact is added by the user to the user terminal.

The items and steps shown in the figures are simplified and only aim at describing the idea of the invention. Other items may be used and/or other functions carried out between the steps. The items serve only as examples and they may contain only some of the information mentioned above. The items may also include other information, and the titles may deviate from those given above. Instead of or in addition to IMS, XDMS, PS and/or AF, the above-described operations may be performed in any other element of a communications system.

In addition to prior art means, a system or system network nodes that implement the functionality of the invention comprise means for processing presence information, in a manner described above. Existing network nodes and user terminals comprise processors and memory that can be utilized in the operations of the invention. Any changes needed in implementing the invention may be carried out using supplements or updates of software routines and/or routines included in application-specific integrated circuits (ASIC) and/or programmable circuits, such as EPLDs (Electrically Programmable Logic Device) or FPGAs (Field Programmable Gate Array).

It will be obvious to a person skilled in the art that, as technology advances, the inventive concept can be implemented in various ways. The invention and its embodiments are not limited to the examples described above but may vary within the scope of the claims.

CLAIMS

1. A method for managing presence service information in a communications system (S), the system (S) comprising

a core network (CN) including a network subsystem (IMS) for providing a presence service to users of the system (S), wherein the core network (CN) further includes a first core network element (XDMS), and

a first user terminal (UE1) capable of connecting to the first core network element (XDMS),

the method comprising

storing, in the first user terminal (UE1), first contacts information on at least one second user terminal (UE2),

characterized by

maintaining, in the first core network element (XDMS), second contacts information on user terminals (UE2) that are capable of using the presence service and that allow provision of their presence information to the first user terminal (UE1);

comparing (2-2) the first contacts information with the second contacts information;

wherein, if the second contacts information includes information on said at least one second user terminal, the method comprises

informing (2-3) the first user terminal (UE1) on the at least one second user terminal (UE2).

2. A method according to claim 1, **characterized** by providing (2-1) the first contacts information from the first user terminal (UE1) to the first core network element (XDMS), wherein the comparison step (2-2) is carried out in the first core network element (XDMS).

3. A method according to claim 1 or 2, **characterized** by providing (2-1) the second contacts information from the first core network element (XDMS) to the first user terminal (UE1), wherein the comparison step (2-2) is carried out in the first user terminal (UE1).

4. A method according to claim 1 or 2, **characterized** in that if the second contacts information includes information on said at least one second user terminal (UE2), the method comprises

receiving (2-4), in the first user terminal (UE1), information on the at least one second user terminal (UE2), and

transmitting (2-5), from the first user terminal (UE1), a presence status request to the second user terminal (UE2).

5. A method according to claim 1 or 3, **characterized** in that if the second contacts information includes information on said at least one second user terminal (UE2), the method comprises

transmitting (2-5, 4-3), from the first user terminal (UE1), a presence status request to the second user terminal (UE2).

6. A method according to claim 4 or 5, **characterized** by

receiving (2-6) the presence status request in the second user terminal (UE2); and, if the presence status request is accepted by the second user terminal (UE2),

providing (2-7), to the first user terminal (UE1), presence information on the second user terminal (UE2).

7. A method according to claim 6, **characterized** by providing to the first user terminal (UE1), presence information on the second user terminal (UE2) by utilizing a second core network element (PS) connected to the network subsystem (IMS).

8. A method according to any of claims 1 to 7, **characterized** in that the second contacts information is service-specific.

9. A method according to any of claims 1 to 8, **characterized** in that the second contacts information is user terminal-specific.

10. A method according to any of claims 1 to 9, **characterized** in that if the first contacts information is updated in the first user terminal (UE1), the method comprises transmitting (2-1), from the first user terminal (UE1) to the first core network element (XDMS), a request for updating said second contacts information with respect to the updated first contacts information.

11. A method according to any of claims 1 to 10, **characterized** in that the first contacts information comprises a telephone number and/or an email address of the second user terminal (UE2).

12. A method according to any of claims 1 to 11, **characterized** in that the second contacts information comprises a SIP-URI and/or an MSISDN of the second user terminal (UE2).

13. A communications system (S) comprising

a core network (CN) including a network subsystem (IMS) for providing a presence service to users of the system (S), wherein the core network (CN) further includes a first core network element (XDMS), and

a first user terminal (UE1) capable of connecting to the first core network element (XDMS), wherein the first user terminal (UE1) is configured to store first contacts information on at least one second user terminal (UE2),

characterized in that the system (S) is further configured to

maintain, in the first core network element (XDMS), second contacts information on user terminals (UE2) that are capable of using the presence service and that allow provision of their presence information to the first user terminal (UE1);

compare the first contacts information with the second contacts information; and, if the second contacts information includes information on said at least one second user terminal (UE2),

inform the first user terminal (UE1) on the at least one second user terminal (UE2).

14. A system according to claim 13, **characterized** in that

the first user terminal (UE1) is arranged to provide the first contacts information to the first core network element (XDMS); and

the first core network element (XDMS) is arranged to compare the first contacts information with the second contacts information.

15. A system according to claim 13 or 14, **characterized** in that

the first core network element (XDMS)) is arranged to provide the second contacts information to the first user terminal (UE1); and

the first user terminal (UE1) is arranged to compare the first contacts information with the second contacts information.

16. A system according to claim 13 or 14, **characterized** in that if the second contacts information includes information on said at least one second user terminal (UE2), the first user terminal (UE1) is arranged to

receive information on the at least one second user terminal (UE2); and

transmit a presence status request to the second user terminal (UE2).

17. A system according to claim 13 or 15, **characterized** in that if the second contacts information includes information on said at least one

second user terminal (UE2), the first user terminal (UE1) is arranged to transmit a presence status request to the second user terminal (UE2).

18. A system according to claim 16 or 17, **characterized** in that the second user terminal (UE2) is arranged to

receive the presence status request from the first user terminal (UE1); and

provide, to the first user terminal (UE1), presence information on the second user terminal (UE2).

19. A system according to claim 18, **characterized** in that the second user terminal (UE2) is arranged to provide, to the first user terminal (UE1), presence information on the second user terminal (UE2) by utilizing a second core network element (PS) connected to the network subsystem (IMS).

20. A system according to any of claims 13 to 19, **characterized** in that as a response to the first user terminal (UE1) updating the first contacts information, the system (S) is arranged to transmit from the first user terminal (UE1) to the first core network element (XDMS), a request for updating the second contacts information with respect to the updated first contacts information.

21. A core network element (XDMS) in a communications system (S),

characterized in that the core network element (XDMS) is configured to

receive, from a first user terminal (UE1), first contacts information on at least one second user terminal (UE2);

maintain second contacts information on user terminals (UE2) that are capable of using a presence service and that allow provision of their presence information to a first user terminal (UE1);

compare the first contacts information with the second contacts information; and, if the second contacts information includes information on said at least one second user terminal,

inform the first user terminal (UE1) on the at least one second user terminal (UE2).

22. A network element according to claim 21, **characterized** in that it is arranged to

receive updated first contacts information from the first user terminal (UE1), and

update the second contacts information with respect to the updated first contacts information.

23. A network element according to claim 21 or 20, **characterized** in that it is arranged to store a first user terminal-specific list of SIP-URI's and/or an MSISDN's on second user terminals (UE2).

24. A network element according to claim 21, 22 or 23, **characterized** in that it comprises an Extensible markup language document management server XDMS.

25. A first user terminal (UE1) in a communications system (S), the first user terminal (UE1) being capable of connecting to a core network element (XDMS) and arranged to maintain first contacts information on a second user terminal (UE2), **characterized** in that first user terminal (UE1) is configured to

provide the first contacts information to the core network element (XDMS); and

receive, from the core network element (XDMS), a notification indicating whether the second user terminal (UE2) is capable of using the presence service and allows provision of its presence information to the first user terminal (UE1).

26. A first user terminal according to claim 25, **characterized** in that if the second user terminal (UE2) is capable of using the presence service and allows provision of its presence information to the first user terminal (UE1), the first user terminal (UE1) is arranged to transmit a presence status request to the second user terminal (UE2).

27. A first user terminal according to claim 25 or 26, **characterized** in that it is arranged to

update the first contacts information; and

transmit, to the core network element (XDMS), a request for updating seconds contacts information stored in the core network element (XDMS).

28. A first user terminal according to claim 25, 26 or 27, **characterized** in that the first contacts information comprises a telephone number and/or an email address of the second user terminal (UE2).

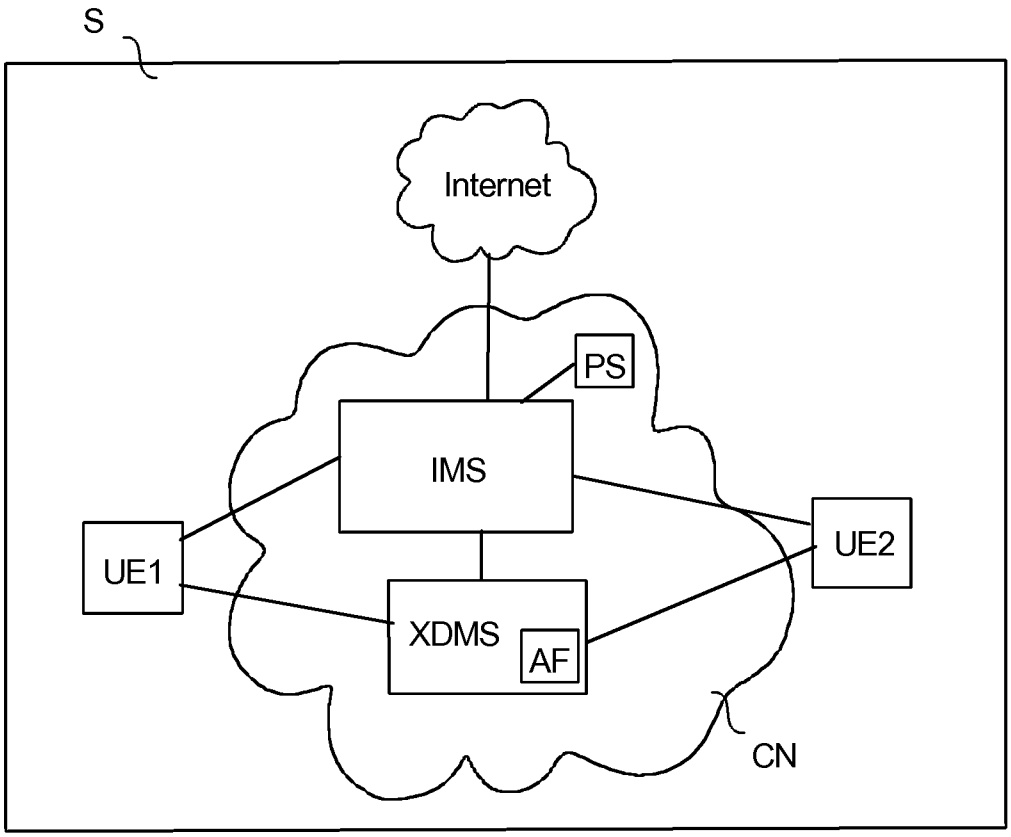

Fig. 1

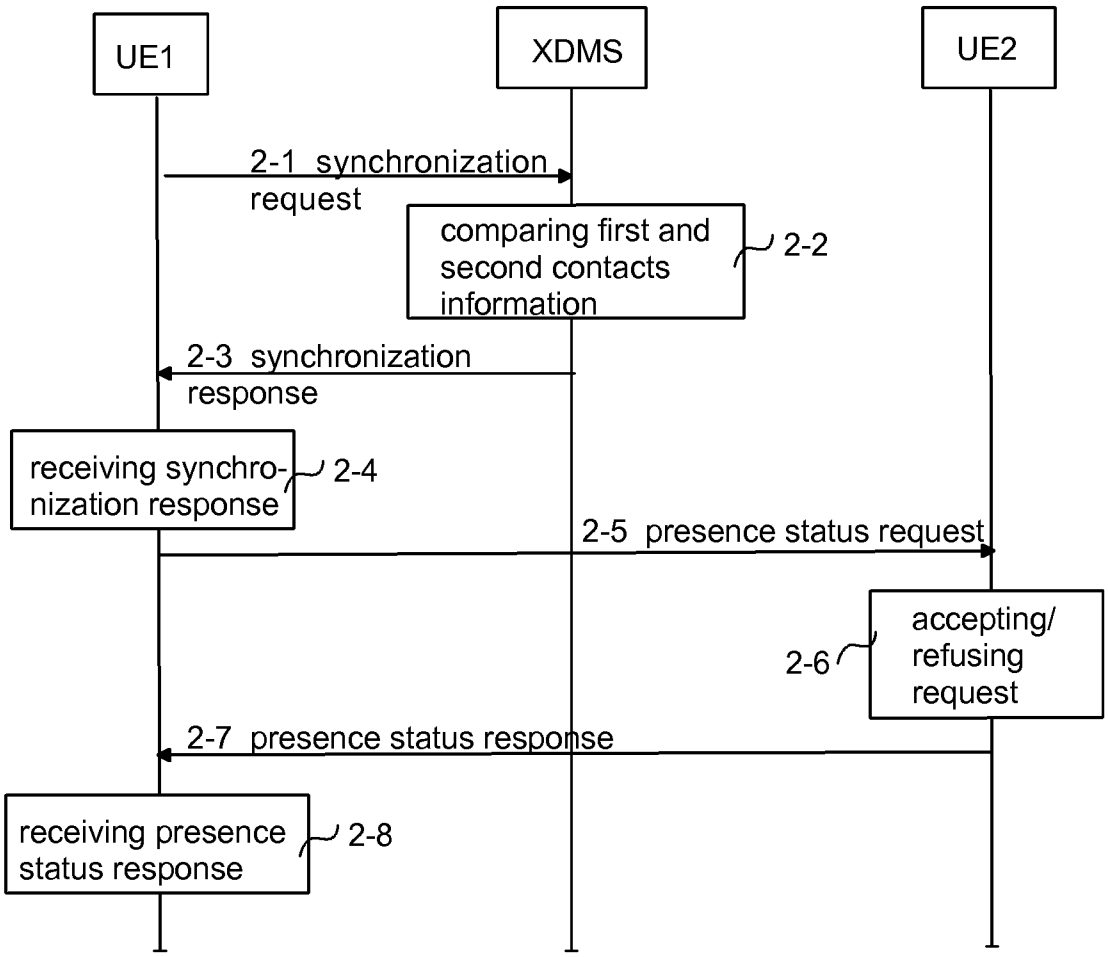
UE1
XDMS
UE2
2-1 synchronization request
comparing first and second contacts information
2-2
2-3 synchronization response
receiving synchro-nization response
2-4
2-5 presence status request
accepting/ refusing request
2-6
2-7 presence status response
receiving presence status response
2-8

Fig. 2

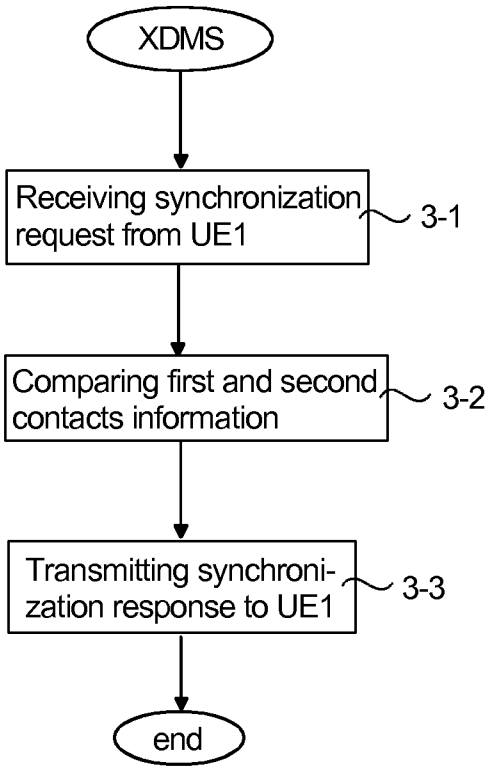
XDMS
Receiving synchronization request from UE1
3-1
Comparing first and second contacts information
3-2
Transmitting synchroni-zation response to UE1
3-3
end

Fig. 3

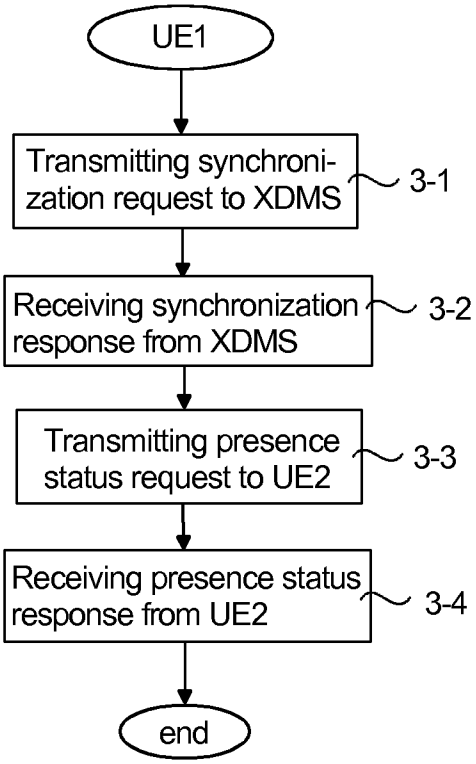
UE1
Transmitting synchroni-zation request to XDMS
3-1
Receiving synchronization response from XDMS
3-2
Transmitting presence status request to UE2
3-3
Receiving presence status response from UE2
3-4
end

Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI2007/050679

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 8: H04L

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

Fl, SE, NO, DK

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

Epo-Internal, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 1699218 A1 (VODAFONE K K) 06 September 2006 (06.09.2006) paragraphs 0009-0014, 0091, 0094-0096, 0103-0104	1-11, 13-22, 24-28 12, 23
Y	US 2006/0195422 A1 (CADIZ JONATHAN J et al.) 31 August 2006 (31.08.2006), paragraphs 0007, 0010, 0023-0024, 0029	12, 23
A	US 2006/0053208 A1 (LAURILA ANTTI et al.) 09 March 2006 (09.03.2006), abstract	1-28
A	GB 2409787 A (NOKIA CORP) 06 July 2005 (06.07.2005), page 12 line 13 - page 18 line 3	1-28

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

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"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 March 2008 (14.03.2008)	15 April 2008 (15.04.2008)

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/FI2007/050679

Patent document cited in search report	Publication date	Patent family members(s)	Publication date
EP 1699218 A1	06/09/2006	WO 2005067274 A1	21/07/2005
		JP 2005190287 A	14/07/2005
US 2006/0195422 A1	31/08/2006	None	
US 2006/0053208 A1	09/03/2006	CN 101044774 A	26/09/2007
		KR 20070088582 A	29/08/2007
		EP 1795022 A1	13/06/2007
		CA 2579739 A1	16/03/2006
		AU 2005281679 A1	16/03/2006
		WO 2006027407 A1	16/03/2006
		US 2006053225 A1	09/03/2006
GB 2409787 A	06/07/2005	CN 1902881 A	24/01/2007
		EP 1700449 A1	13/09/2006
		WO 2005067253 A1	21/07/2005

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI2007/050679

CLASSIFICATION OF SUBJECT MATTER

Int.Cl.
H04L 29/08 (2006.01)
H04L 12/58 *{2006m)*