Title: METHOD AND ARRANGEMENTS FOR DISPLAYING INFORMATION TO A USER

Abstract: A method in a service server for providing information associated with a first UE to a second UE when the first UE requests a voice session via at least one network node to the second UE. The service server receives an identity of the first UE which has been determined by the network node and sends, from the service server to a memory, a request for retrieval of information which is at least in part associated with the first UE and wherein the request comprising the first UE's identity. Receiving information which is at least in part associated with the first UE's identity in response to the request and establishing a broadcasting session from the service server to the second UE via at least one network nodes, Publishing the received information to the second UE over the broadcast session.
METHOD AND ARRANGEMENTS FOR DISPLAYING INFORMATION TO A USER

Technical field

[0001] The invention relates to a method and arrangement for displaying information to a user.

Background

[0002] Telecommunication service providers seek new ways of developing services around new types of information and user behaviors. For instance, new services may comprise making new types of abundant information easily available to a user of a User Equipment (UE).

[0003] Currently, the user base comprises of a diverse flora of hardware and/or software platforms. In the more recent generations of UEs actions may be performed by pure software implementations. Moreover, hardware and/or software platforms in operating systems may be proprietary and/or hard to access. This is naturally an interoperability challenge in order to enable the telecommunication service providers to provide new types of services which can be used by the majority of the user base, independently of the manufacturer of the UE. Such challenge may become even harder to meet if the service is constrained to not use transmission of data by using General Packet Radio Service (GPRS) or for instance data transmission using Universal Mobile Telecommunications System (UMTS). Normally GPRS or UMTS may be used in order to deploy clients or to serve existing clients, such as a web browser, to access platform independent information.

[0004] By setting up a peer-to-peer session, using for instance GPRS, a platform independent information service can be achieved. However, a peer-to-peer session often brings an unacceptable or at least an undesired latency which decreases the user experience. If the information, provided by the service, is relevant for only a
couple of seconds or even less, a peer-to-peer session as described above is an unacceptable solution.

Summary

[0005] It is an object of the invention to address at least some of the limitations, problems and issues outlined above. It is also an object to improve the process of displaying information to a user of a UE when the UE is the receiving party in a voice session. It is possible to achieve these objects and others by using a method and an arrangement as defined in the attached independent claims.

[0006] According to one aspect, a method in a service server for providing information associated with a first UE to a second UE is provided. The information is provided when a first UE is requesting a voice session via at least one network node to the second UE. The process comprises receiving the identity of the first UE which has been determined by said network node. The service server sends a request to a memory. The request comprises a request for retrieval of information which is at least in part associated with the first UE, wherein the request also comprises the identity of the first UE. The service server receives information which is at least in part associated with the identity of the first UE in response to the request. The service server establishes a broadcasting session from the service server to the second UE via the at least one network nodes. The service server publishes the received information to the second UE over the broadcasting session.

[0007] According to another aspect a service server arrangement adapted to provide information about a first UE to a second UE when the first UE requests a call set-up to the second UE. The service server comprises an identity receiving unit adapted to receive the identity of the first UE from a network node. An information retrieval unit which is adapted to send a request for retrieval of information associated with the first UE to a memory, wherein the request comprises the identity of the first UE. The service server comprises a publishing unit which is adapted to set
up a broadcasting session from the service server via at least one network node to
the second UE, and, wherein the publishing unit is adapted to publish the retrieved
information to the second UE using the broadcasting session.

[0008] The above method and arrangement may be configured and implemented
according to different embodiments. In one example embodiment, the first UE is in
communication connectivity with the service server and capable of registering the
first UE to the service server. One or more services is selected at the service server
such that the services are associated with the first UE and subscribing the first UE to
the selected services such that the request for retrieval of information comprises a
request for retrieval of information which is further associated with the subscribed
services.

[0009] According to another example embodiment, the broadcasting session is a
Unstructured Supplementary Service Data (USSD) session and wherein at least one
of the network nodes is a USSD gateway and wherein the broadcasting session is a
USSD-session between said USSD gateway and the second UE and wherein the
information is delivered as a USSD message to the second UE.

[0010] According to another example embodiment, the broadcast session is a
Calling Name Presentation (CNAP)-session and wherein at least one of the network
nodes is a CNAP-server and wherein the information which is associated with the
first UE is delivered as a CNAP message to the second UE.

[0011] According to one example embodiment is the communication connectivity
formed by a USSD-session between the first UE and the service server.

[0012] According to one example embodiment, the information associated with
the first UE comprises information about the geographical location of the first UE.
[0001 3] According to one example embodiment, is the information associated to the first UE comprising information about whether or not the identity of the first UE is registered to a first memory and/or a second memory, wherein the first memory comprises information associated with trusted UEs and wherein the second memory comprises information associated with soliciting parties and/or distrusted parties and/or SPAM.

[0001 4] According to another example embodiment, the information associated to the first UE comprises information representing a message provided by the first UE to the memory, wherein the information representing the message may comprise a message from at least one social network server and/or a microblog.

[0001 5] According to another example embodiment, the social network server or microblog is one or more selected from: Twitter, Facebook, Hi5, Hyves, Orkut, Renren, KaixinOOL, Xiaoyou, RenRen, Taobao taijianghu, Baidu Tieba, Sina weibo, Sohu weibo, Myspace, LinkedIn, Tagged, Cyworld, Foursquare, Gowalla, Jaiku and identi.ca.

[0001 6] According to another embodiment, the retrieved information representing a status message is from an information feed which is associated with said first UE.

[0001 7] Further possible features and benefits of this solution will become apparent from the detailed description below.

Brief description of drawings

[0001 8] The invention will now be described in more detail by means of some example embodiments and with reference to the accompanying drawings, in which:

[0001 9] Fig. 1 shows an illustration of the architecture for setting up a U5SD session between a UE and a network node.
Fig. 2 shows an illustration of a signaling scheme between a first UE, a service server and a content server.

Fig. 3 shows a signaling scheme illustrating the process of registering a first UE to a service server which updates information regarding the first UE at a content server.

Fig. 4 shows an illustration of a network scenario for a first UE which is calling a second UE and wherein information about the first UE is published to the second UE.

Fig. 5 shows an illustration of a network scenario for a first UE which is calling a second UE and wherein information about the first UE is published to the second UE.

Fig. 6 shows an illustration of a second UE comprising a screen further displaying a message with information about a first UE.

Fig. 7 shows a flowchart illustrating the process for providing information to a second UE.

Fig. 8 shows a flowchart illustrating the process for providing advertisement to a UE from a service server.

Fig. 9 shows a flowchart illustrating the process for determining if a first UE is a trusted or a distrusted party.

Fig. 10 shows a service server arrangement adapted to perform the actions according to the processes and signaling schemes of fig. 1-9.

Detailed description

Briefly described, methods and arrangements for providing information pursuant to setting up a voice session are provided in this document. The
information may be abundant and semantically associated with a calling UE or with a receiving UE. In this description the calling UE is hereinafter referred to as a first UE while the receiving UE is hereinafter referred to as a second UE.

[00030] It has been recognized by the inventor that using Unstructured Supplementary Service Data (USSD), Caller Name Presentation (CNAP), may provide real-time information to a second UE regardless of the hardware and software of the second UE. Moreover, the real-time information may be provided to the second UE with low latency.

[00031] USSD is a session oriented technology, compared to, for example, Short Message Service (SMS) which is a transaction oriented technology. USSD is comprised in the Global System for Mobile communication (GSM) standard. Similar to SMS and Multimedia Messaging Service (MMS), which also is comprised in the GSM standard, USSD can display information in the form of text to the user through the User Interface (UI) of the UE. Normally, USSD also uses the GSM control channels for data transfer. In the scenario when the second UE is not engaged in a voice session, the stand-alone dedicated control channel (SDCCH) is normally used.

In the case when the second UE is engaged in a voice session, is instead the Fast Associated Control Channel (FACCH) used to transport USSD data to the UE.

[00032] A distinction between the commonly used SMS technology and USSD is the number of characters comprised in one message. SMS only allows for 140 x 8-bit characters or alternatively 100 x 7-bit characters. USSD on the other hand allows for up to 182 alphanumeric characters in one message, which corresponds to 1456 bits. Moreover, USSD does not require any user intervention in order to display the USSD-message, compared to SMS which in some UE operating systems require user intervention to display the SMS.

[00033] Another technology for providing and displaying information to a second UE without using conventional technologies for data transfer is CNAP. CNAP is a
supplementary service which is capable of indicating the name information of the
first UE to the second UE. The indication of the name of the first UE to the second UE
is normally performed at call set-up time. CNAP do not require the user of the
second UE to take action in order to activate, initiate or provide CNAP. The usage
and implementation of USSD and CNAP will be further described in below. It should
also be noted that no information regarding the first UE is required to be stored at
the second UE prior to the voice session set-up.

[00034] Now several possible usages of technologies such as USSD and CNAP
will be disclosed. Although some of the examples are illustrated by using USSD or
CNAP, any other technology with similar properties may be used to provide
information about the first UE to the second UE. For instance, according to one
certain example, the Radio Access Network Application Part (RANAP) protocol
comprised in the Wideband Code Division Multiple Access (W-CDMA) air interface
standard may be used to provide a message similar to the message of CNAP.

[00035] Now with reference to fig. 1, a schematic overview of the network
architecture of an arrangement for USSD signaling is provided. This example
comprises a UE 100 and a network node 110 which also are disclosed in fig. 1.
The UE 100 comprises a User Interface (UI) 101 which is capable of receiving input
from a user of the UE 100 as well as to provide visual output to the user of the UE
100. The UE 100 further comprises a USSD handler 102 which is capable of
setting up a USSD session based on a request of the UE 100 or based on a request
from a the network node 110. Hence, the USSD handler is also further adapted to
be in communication connectivity with a corresponding USSD handler at the
network node 110. The USSD handler 102 is further capable of formatting the input
from the user provided via the UI 101 according to the USSD specifications. The
network node 110 comprises a USSD handler 112 and an application unit 111.
The USSD handler 112 is correspondingly adapted to be in communication
connectivity with the UE 100 and to format input and output to and from the
application unit 111. In one embodiment, the network node 110 may be a server wherein the application unit may comprise a proxy. Thus, the arrangement for providing communication using USSD between a UE and, for instance, Internet via the network node 110 may be achieved.

[00036] The network node may, according to an example embodiment, act as a USSD gateway for handling communication to and from the UE 100. The network node in fig. 1 may comprise any one of the following functional units within the core network of the GSM network architecture: a Mobile Service switching Centre (MSC), a Visitor Location Register (VLR), a Home Location Register (HLR) or any other network entity such as an application platform which has access to the USSD service such as the service server which is described more in detail below. In other embodiments, the network node may comprise a Base Station Controller (BSC) or a Base Transceiver Station (BTS).

[00037] In fig. 2 a signaling scheme between a first UE 200, a service server 210 and a content server 220 is disclosed. The communication between the first UE 200 and the service server 210 can typically be implemented using USSD and according to the above disclosed arrangement. USSD can provide an interactive solution, wherein the service server 210 does not need to know about the particulars of the first UE 200. However, the communication between the service server 210 and the content server 200 is typically implemented using any one of the existing solutions according to the Open Systems Interconnection (OSI) model. In one particular embodiment, the communication between the service server 210 and the content server 220 is Hypertext Transfer Protocol (HTTP) or Hypertext Transfer Protocol Secure (HTTPS). In action 1:1 the first UE 200 registers to the service server 210 which is typically performed by invoking a USSD session to the session server 210. In action 1:2 the service server 210 creates an account which is associated with the first UE 200 according to predetermined means of identity which will further described below.
[00038] The service server 210 queries the first UE 200 regarding the origin of the information which is going to be associated with the first UE 200. According to one particular embodiment, the first UE 200 is queried to provide which content servers that information should be gathered from. According to another embodiment, a predefined list of possible content servers 220 is provided to the first UE 200 by the service server 210 in action 1:3 and wherein the user of the first UE 200 provides a response comprising a selection of services in action 1:4. In action 1:5 the service server 210 prepares proxies for the content servers 220 in order to avoid storing sensitive account information which is associated with the first UE 200, such as usernames and/or passwords or passphrases. Thus, subsequently the service server 210 requests the first UE 200 to provide log-in details in order to enable retrieval of information from the content server 220. The information provided by the first UE 200 in action 1:6 is normally directly provided to the content server 220 in action 1:7a using the proxy in action 1:7b. Action 1:7b further comprises to request permission to retrieve information associated with said first UE 200 from the content server 220. The content server 220 creates and arranges the necessary permissions based on the login details which are provided by the first UE in action 1:7a. If the login details are valid and granting permission for information retrieval is successful in action 1:8, a permission status indicating a successful permission set-up or a failure is provided to the service server in action 1:9. It should be appreciated by the skilled person that an error message can be handled by minor adjustment of the above described signaling scheme.

[00039] Now with reference to fig. 3, a signaling scheme showing a first UE 300 performing the registration to a service server 310 is described in detail. This signaling scenario is normally performed after the first UE 300 has created an account at the service server 310 according to fig. 2. In a first action 2:1, the first UE 300 registers to the service server 310 which in response provides a selection of services to the first UE 300 in action 2:2. The first UE 300 subscribes to one or
more services in action 2:3 based on user input and/or predefined preferences. The first UE 300 may also provide means for authentication and/or a service specific identification for one or more of the subscribed services if needed. The authentication information may subsequently be required in order to allow the service server 310 to access information associated with the first UE 300 or to arrange for temporary or persistent permission to access the information.

[00040] The service server sends a request 2:4 to retrieve information to a content server 320. The request can be formatted according to the existing communication interfaces for service network layer interoperability. However, for some content services, specific Application Programming Interfaces (APIs) may exist in order to request certain information. The content server 320 provides the service server 310 with the requested information in response to the request in action 2:5. If no information about the user exists at the content server, i.e. no account matches the identity of the first UE 300, an error message may be created. In one embodiment, the error message may invoke the service server 310 to enable the first UE 300 to create an account at the content server 320 in accordance with actions 1:7-1:9 of fig. 2 wherein a USSD-session is utilized between the first UE 300 and the service server 310, and wherein the service server 310 comprises a proxy for creating an account also at the content server 320.

[00041] The service server 310 updates and stores the new information associated with the first UE 300 in action 2:5. Thus, the service server is now capable of providing a second UE with information associated with the first UE according to the signaling scenarios and processes described in fig's 4-9.

[00042] The service server 310 issues requests to the content server 320 based on a predetermined period in order to keep the information updated. If the information in the content server 320 is identical to the previous request, no update is done. According to one embodiment, the content server sends an answer to the request
comprising only a void message. This is represented by actions 2:6π for requesting information and 2:7a-2:7n for providing a message comprising information which is identical to the previously provided information.

[00043] When, for example, the first UE 300 submits new information in action 2:8 to the content server 320, the information is stored and updated in action 2:9. Thus, when the service server 310 queries a request for information to the content server 320 in action 2:10, new information which is associated with the first UE is available. Consequently, the content server 320 provides 2:11 the updated information to the service server 310 which in turn updates 2:12 the information associated with the first UE 300. As a consequence of continuously performing the actions 2:6π-2:12 the information in the service server 310 may be kept updated.

[00044] It should be understood that even if the example above only handles three entities, the service server 310 could handle multiple UEs as well as multiple content servers simultaneously. A content server may for instance comprise a server comprising content which relates to one or more microblogs.

[00045] The term microblog should hereinafter be understood as a broadcasting medium in the form of a blog. A microblog may differ from a traditional blog in that each user generated posting, i.e. blog entry, comprises less letters and/or data. In one certain example of a microblog the size of each blog entry is limited to 140 alpha numerical characters.

[00046] Services for microblogging currently exist in profusion in the art. According to some examples of such services features privacy settings which allows the user of the service to determine how the user generated data is extracted from the microblog. According to another certain example, publishing of user generated content may be provided by a various range of means for communication. A list of non-limiting examples are by using a web interface provided over Internet, using a SMS-service, using a USSD-service, instant messaging, E-mail or digital audio.
A list of non-limiting examples of microblogs may comprise Twitter, Facebook, Hi5, Hyves, Orkut, Renren, KaixinO01, Xiaoyou, RenRen, Taobao taijianghu, Baidu Tieba, Sina weibo, Sohu weibo, Myspace, LinkedIn, Tagged, Cyworld, Foursquare, Gowalla, Jaiku and identi.ca

In one certain embodiment is the information provided by the content server to the service server associated with the status feed of a microblog or social network.

Now referring to fig. 4, which illustrates a scenario of providing information associated with a first UE 401 to a second UE 402. In action 3:1 the first UE 401 requests to set up a voice call with the second UE 402 by requesting the carrier to route and initiate the voice call. Upon receiving the request for a call from the first UE 401, the carrier can locate and prepare for initialization of the request of voice call set-up in action 3:2. The actions 3:1 and 3:2 may be implemented according to various ways which are known by the skilled person. One certain example for providing a voice session between two UEs is by using the standard for GSM. However, the actions in and voice session as described with reference to fig. 4 may be achieved using more recent telecommunication standards such as W-CDMA.

The carrier provides the identity of the first UE 401 and/or the identity of the subscriber and/or the identity of the user to a service server 404 in action 3:3.

The term identity shall hereinafter mean to be at least one of the identity of the first UE 401, the identity of the subscriber and/or the identity of the current user of the first UE 401. In action 3:4 information is retrieved based on the identity. According to one embodiment, the retrieved information may be based on the identity of the first UE 401 such that the information is semantically associated to at least one of the user of the first and the user of the second UEs. Examples of specific identifiers that may be utilized in certain embodiments are International Mobile
Subscriber Identity (IMSI) which comprises Mobile Country Code (MCC) and Mobile Network Code (MNC) and the Mobile Subscriber Identification Number (MSIN).

Another non-limiting example of an identity utilized in action 3:3 is the Mobile Station Integrated Services Digital Network (MSISDN) Number which comprises Country Code (CC), National Destination Code (NDC) and Subscriber Number (SN). In specific embodiments wherein the identity is depending of the UE and not directly depending of the subscriber, the International Mobile Equipment Identifier (IMEI) can be utilized in order to have a stable identity indicator which is independent of changes in subscription. I.e. changing Subscriber Identity Module (SIM) card in the UE will not affect the identity of the UE. In certain other embodiments also the Mobile Station Roaming Number (MSRN) may serve as a non-limiting example of the identity in action 3:3.

[00052] Naturally, the identification may in other specific embodiments be a value or an indicator derived from the identity, such as for example hash number representations or other similar techniques which exists in profusion in the art. Moreover, in certain embodiments the identity may be manually provided by the user of the UE and/or by the carrier with which the subscriber is associated with.

[00053] If the first UE 401 is registered to the service of providing information to the second UE 402, the service server 404 retrieves the information from a memory 405 in action 3:4. The memory 405 may be arranged internally or externally to the service server 404. According to another exemplary embodiment the memory 405 is a database. The skilled person will appreciate that there exists many other means of storing information which currently exists in profusion in the art.

[00054] According to one embodiment, the memory 405 may be comprised in a content server as described in fig. 2 and fig. 3. Thus, the information retrieved may also originate from any one of the examples of microblogs as previously listed.
[00055] If the memory 405 comprises information which is associated with the first UE 401, the service server 404 provides the retrieved information and the identity of the first UE 401 to a gateway 406 in action 3:5. The gateway 406 applies rules for formatting in a subsequent optional action 3:6. In an optional and alternative embodiment, action 3:6 is omitted and the service server may instead pre-format the information according to the specification of the gateway 406. Selection of the rules for formatting is based on a selected implementation of broadcasting session. In one embodiment, the gateway 406 is a USSD gateway. In case the gateway 406 is a USSD gateway the information is formatted according to the USSD specifications, e.g. less than 182 alphanumeric characters. The gateway is requesting, according to action 3:7, a USSD session between the USSD gateway 406 and the second UE 402. Action 3:8 comprises to set-up the call between the first 401 and the second UE 402. Pursuant to setting up the call, the information which is retrieved in action 3:4 is published to the second UE 402 in action 3:9.

[00056] According to an alternative embodiment, the gateway 406 is a carrier CNAP node. According to that certain embodiment, the information retrieved in action 3:4 is formatted into a text string. The text string may for example be ASN 1 encoded and formatted according to CNAP specifications, i.e. less than 160 alphanumeric characters. Pursuant to formatting the CNAP data which comprises the information associated with the first UE 401, the gateway 406 provides the CNAP data to be embedded as Facility IE inside the Call-Control Setup message in a network node 403 in action 3:7. The system of the network node 403 is evoked to in the action 3:8 of setting up the call also publish the CNAP data to the first UE 402.

[00057] Now with reference to fig. 5, a schematic illustration of another embodiment of a signaling scheme involving service server 504 is disclosed. In this embodiment, information regarding the identity of the first UE 501 is published to the second UE 502. Thus, the user of the second UE 502 can be informed about the
identify of the first UE 501 without any prior interaction with the second UE 502. Moreover, no additional application is launched in order to validate the identity of the first UE 501, and the process of providing the identity of the first UE 501 to the second UE 502 may be opaque to the first UE 501.

[00058] In action 4:1 the first UE 501 requests to set up a voice call with the second UE 502 by requesting the carrier to route and initiate the voice call. Upon receiving the request for a call from the first UE 501, the carrier can locate and prepare for initiating the voice call in action 4:2. The actions 4:1 and 4:2 may be implemented according to various ways which are known in the art. One certain example for providing a voice session between two UEs is by using the standard for GSM. The carrier node provides the identity to the service server in action 4:3.

[00059] The service server queries a first database 505 and/or a second database 506 in action 4:4a and 4:4b. The first database 505 comprises identities of trusted UEs while the second database comprises identities of distrusted UEs. The skilled person will appreciate that even if the databases comprising the identities of trusted and the identities of the distrusted are two separate databases in fig. 5, the two databases may be merged into one or the databases may be distributed in several databases. The databases may additionally comprise information associated with one or more UE identities which may be provided in response to the query from the service server, according to the databases which exists in profusion in the art.

[00060] The actions 4:4a and 4:4b may be performed in parallel or sequentially to each other. The actions 4:4a and 4:4b may be mutually independent or mutually dependent. For example, if the identity of the first UE 501 matches an identity comprised in the first database 505, no query may be issued to the second database 506 and vice versa. If the identity of the first UE 501 matches identities comprised in both the first and the second database the service server will
determine which information to provide to the second UE 502 depending on
implementation specific precedence rules.

[0006 1] In action 4:5 the service server 504 provides the information which is
associated with the first UE 502 to a gateway 507. The gateway 507 formats and
provides the information to the network node in action 4:6 and 4:7 which are
substantially similar to the action 3:6 and 3:7 according to figure 4 and which are
previously described. The network node requests a call setup in action 4:8
publishes the information associated with the first UE 501 to the second UE 502 in
action 4:9. According to the system and signaling scenario described in fig. 4, the
second UE 502 will be provided with information regarding the first UE 501.
According to one certain embodiment, the first database 505 may comprise
information about trusted entities such as state authorities and/or financial
institutions such as banks. The second UE 502 may then be provided with the origin
and identity of the first UE 501. According to another certain embodiment the
second database 506 may comprise information about UEs which are used by
distrusted parties and/or parties performing unwanted solicitation, such as for
instance telemarketing companies or spam advertisers.

[00062] Now with reference to fig. 6 one example of a UE 600 is shown. The UE
600 comprises a screen 601 and an input interface 603. The input interface 603
may for instance be a physical keyboard or a touch screen capable of registering
user input. Fig. 5 further shows one example of an information representation 602
on a second UE according to the scenario described in fig's 4 - 5 above and 7 - 9
below.

[00063] Now with reference to fig 7, a process of providing information
associated with a first UE to a second UE will be disclosed. The process in fig. 7
may be implemented according to any one of the embodiments and/or signaling
scenarios described in fig's 1-5 and the information can be displayed in accordance with the message which is displayed in fig. 6.

[00064] In a first action 701 the identity of the first UE is determined by a network node which is provided to the service server, and thus received by the service server in action 702. According to one embodiment, the identity may be provided by the GSM core network and provide the identity such that the process at the service server is invoked. The service server sends a request for retrieval of information from a memory in action 703. The memory comprises information which is at least in part associated with the first UE. In action 704 the service server receives the requested information from the memory. The service server establishes a broadcast session to said second UE in action 705 and prepares the information such that it may be published over said broadcast session in action 706.

[00065] Now with reference to fig. 8, a process for presenting advertisement is disclosed in detail. The process may be performed according to the systems, signaling schemes and techniques described in fig. 1-5 and the advertisement can be displayed in accordance with the message which is displayed in fig. 6.

[00066] In a first action 801 one or more UEs registers to the advertisement service. This action may be performed by the users of the UEs such as described in fig's 2 and 3. However, in some embodiments the telecommunication service provider registers the UEs to the service with or without the user of the UEs' involvement. Action 801 also comprises to register information about the user of the UE. This may be done according to any one of the possible ways of acquiring the identity of the UE which is previously described. Moreover, in some certain embodiments, preferences of the users of the UE are also registered enabling tailored advertisement.

[00067] In action 802 a service server enters and stores advertisements. According to one certain embodiment, the advertisement is pre-structured and/or pre-
formatted. A pre-structured or pre-formatted advertisement message may be
delivered from the service server to the UE over a USSD session without any
additional formatting.

[00068] In action 803 the service server selects at least one UE which may be
based on the content of the advertisement to be published and/or the individual
preferences which are associated with the UEs. In action 804 the service server
queries a network node regarding whether or not the selected UEs are idle or
currently engaged in a voice session. If a selected UE is engaged in a voice session,
no advertisement message will be published. For the UEs which are idle and not
engaged in any voice session, the service server prepares the advertisement in
action 805 by initiating a USSD session with at least one of the selected UEs. In a
subsequent action 806 the advertisement message is published to the selected UEs
which are not engaged in a voice session. In an optional action 807 the service
server checks whether or not more advertisement messages should be delivered. The
process described in fig. 8 may enable a fast and scalable solution to post
advertisement messages to one or several UEs sequentially or simultaneously.
Moreover, the process according to fig. 8 does not require any specific software or
hardware at the UE, i.e. at the client side. Thus, one process at the service server
may serve a UE population comprising of various UE hardware models and various
software systems running on the UE population.

[00069] According to one alternative, the service server selects the advertisement
provided to the UE in action 803 to 806 based on the geographical position of the
UE. The position of the UE may for instance be provided by a Global Positioning
System (GPS) unit provided in the UE. Another alternative for providing positing in
of the UE is by for instance using positing service which currently exists in the core
network for mobile communication. In one certain example, services comprised in
Signaling System No. 7 (SS7) may be used to provide the positioning of the UE to
the service server. SS7 or similar technologies may be used in order to monitor which cell the UE is registered to.

[00070] Now with reference to fig. 9, a process of displaying information such as the identity about a first UE to a second UE will be disclosed. The process of fig. 9 can be implemented according to the scenario scheme which is disclosed in fig. 4.

[00071] The first UE request to set-up a call to the second UE in action 901. The network node provides the identity of the first UE to the service server in action 902. In this certain embodiment the identity of the first UE is typically coupled with the identity of the hardware of the second UE, such as for example the IMEI number of the first UE. The service server queries a first database in order to determine the first database comprises any information associated with the first UE in action 903. In a conditional and optional action 904, the service server analyzes the result from the action 903 and based on the information retrieved from the first database the service server will determine whether to query a second database or not in action 905. In action 906 the service server will handle the information retrieved in actions 903 and 905. Based on the retrieved information the service server may format and compose a message which can be displayed to the second UE. For example, if the identity of the first UE is comprised in the two databases and thus indicates that the first UE is both a distrusted and trusted party the service server may utilized predetermined precedence rules.

[00072] In action 907 the service server provides the composed message and/or information to a gateway which is capable of broadcasting the message to the second UE over the carrier network such that the information is displayed pursuant to the call-set up. The gateway establishes a broadcast session in action 908 and correspondingly publishes the information in action 909.

[00073] Thus, the process described in fig. 9 enables the second UE to receive a visual message indicating if the calling party, i.e. the first UE is a trusted party such
as a bank or a distrusted party such as a telemarketing company or spam advertisers.

[00074] Now with reference to fig. 10a a service server arrangement 1000 will be disclosed in further detail. Fig. 10a also shows a memory 1010 and a gateway 1020. Although the service server 1000, the memory 1010 and the gateway 1020 are illustrated as separate entities the skilled person will appreciate that two or all of the three entities may be integrated without departing from the solution. The service server comprises an identity receiving unit 1003 which is adapted to be in communication connectivity with one or more network nodes in a GSM core network. The identity receiving unit 1003 is further adapted to receive an identity of a first UE. The service server 1000 further comprises a processing unit 1001 and a memory 1002 which is adapted to process and if necessary store the identity. The service server further comprises an information retrieval unit 1004 which is in communication connectivity with one or several memories 1010. According to one embodiment the memory 1010 is a database. The information retrieval unit 1004 is further adapted to send requests for information which is at least in part associated to the first UE, i.e. associated to the identity of the first UE. The information retrieval unit 1004 is further adapted to receive the information from the memory 1010 and wherein the response is provisioned to the processing unit 1001 which is further adapted to processed and handle the received information. The service server 1000 further comprises a publishing unit which is adapted to initiate and setup a broadcast session between the service server 1000 and a second UE via a gateway 1020 and one or more GMS or WCMDA core network nodes. The publishing unit 1005 is further adapted to publish the information which is provided by the information retrieval unit to the second UE using the broadcasting session.

[00075] The different modules in the service server 1000 may be configured and adapted to provide further optional features and embodiments. In one example embodiment, the publishing unit 1005 is further adapted to be in communication
connectivity with a USSD-session. In another example embodiment, the processing unit 1001 and/or the publishing unit 1005 is adapted to format the information to be published according to the USSD specifications.

[00076] According to another example embodiment, is the publishing unit 1005 adapted to format the information to be published according to the CNAP specifications and subsequently provide the formatted information over a broadcast session according to the CNAP specification.

[00077] Now with reference to fig 10 b which illustrates an optional embodiment of an arrangement of the service server of 10a which further comprises a communication unit 1006. The communication unit 1006 is adapted to be in communication connectivity with a first UE 1040. According to one embodiment, the communication unit 1006 is adapted to perform the signaling scheme of fig. 2 and fig. 3. In one certain embodiment the communication unit 1006 comprised in the service server 1100 may be adapted to use USSD in order to achieve communication connectivity between a first UE 1040 and the communication unit 1006.

[00078] It should be noted that Fig's 10a and 10b merely illustrates various functional modules or units in the service server 1000 in a logical sense, although the skilled person is free to implement these functions in practice using suitable software and hardware means. Thus, the invention is generally not limited to the shown structures of the service server 1000, while its functional modules 1001 - 1006 may be configured to operate according to the features described for Fig's 1-5 above and Fig. 7-9 above, where appropriate.

[00079] The functional modules 1001-1006 described above can be implemented in the service server 1000 as program modules of a computer program comprising code means which when run by a processor in the service server 1000 causes the server 1000 to perform the above-described functions and actions. The processor
may be a single CPU (Central processing unit], or could comprise two or more processing units. For example, the processor may include general purpose microprocessors, instruction set processors and/or related chips sets and/or special purpose microprocessors such as ASICs (Application Specific Integrated Circuit). The processor may also comprise board memory for caching purposes.

The computer program may be carried by a computer program product in the service server 1000 connected to the processor. The computer program product comprises a computer readable medium on which the computer program is stored. For example, the computer program product may be a flash memory, a RAM (Random-access memory), a ROM (Read-Only Memory) or an EEPROM (Electrically Erasable Programmable ROM), and the program modules could in alternative embodiments be distributed on different computer program products in the form of memories within the service server 1000.

While the invention has been described with reference to specific exemplary embodiments, the description is generally only intended to illustrate the inventive concept and should not be taken as limiting the scope of the invention. For example, the terms "UE", "service server", "network node", "database", "gateway" and "content server", have been used throughout this description, although any other corresponding functions, parameters, nodes and/or units could also be used having the functionalities and characteristics described here. The invention is defined by the appended claims.

It must be noted that, as used in this specification and the appended claims, the singular forms "a", "an" and "the" include plural referents unless the context clearly dictates otherwise.
CLAIMS

1. A method in a service server for providing information associated with a first UE to a second UE when said first UE is requesting a voice session via at least one network node to said second UE, the method comprising:
   - receiving (702;3:3) an identity of said first UE which has been determined (701;3:2) by said network node;
   - sending (703;3:4), from said service server to a memory, a request for retrieval of information which is at least in part associated with said first UE, wherein said request comprising said identity of the first UE;
   - receiving (704;3:4) information which is at least in part associated with said identity of said first UE in response to said request;
   - establishing (705;3:5) a broadcasting session from said service server to said second UE via said at least one network nodes; and
   - publishing (706;3:9) said received information to the second UE over said broadcasting session.

2. A method according to claim 1, wherein said first UE is in communication connectivity with said service server, further comprising:
   - registering (2:1) said first UE to said service server;
   - selecting (2:2) one or more services at said service server such that said services are associated with said first UE; and
   - subscribing (2:3) said first UE to said selected services such that said action of sending (703;3:4) a request for retrieval of information comprises a request for retrieval of information which is further associated with said subscribed services.

3. A method according to any one of claim 1 or 2, wherein the broadcasting session is a Unstructured Supplementary Service Data (USSD) session and wherein said at least one network nodes comprises a USSD gateway and wherein the broadcasting session is a USSD-session between said USSD gateway and said
second UE and wherein said information is delivered as a USSD message to said second UE.

4. A method according to any one of claim 1 or 2, wherein the broadcast session is a Calling Name Presentation (CNAP)-session and wherein at least one of the network nodes is a CNAP-server and wherein said information which is associated with said first UE is delivered as a CNAP message to said second UE.

5. A method according to claim 2, wherein said communication connectivity is formed by a USSD-session between said first UE and said service server.

6. A method according to any one of the previous claims, wherein said information associated with said first UE comprises information about the geographical location of said first UE.

7. A method according to any one of the previous claims, wherein said information associated with said first UE comprises information about whether or not the identity of the first UE is registered to a first memory and/or a second memory.

8. A method according to claim 7, wherein said first memory comprises information associated with trusted UEs.

9. A method according to claim 7, wherein said second memory comprises information associated with soliciting parties and/or distrusted parties and/or spam.

10. A method according to any one of claims 1 to 6, wherein the information associated to said first UE comprises information representing a message provided by the first UE to said memory.
11. A method according to claim 10, wherein the information representing said message further comprises a information from at least one social network server and/or a microblog.

12. A method according to claim 11, wherein said social network server and/or microblog is one or more selected from: Twitter, Facebook, Hi5, Hyves, Orkut, Renren, KaixinOOI, Xiaoyou, RenRen, Taobao taijianghu, Baidu Tieba, Sina weibo, Sohu weibo, Myspace, LinkedIn, Tagged, Cyworld, Foursquare, Gowalla, Jaiku and identi.ca

13. A method according to any one of claims 11 to 12, wherein said information representing a message is a status message from an information feed which is associated with said first UE.

14. A service server (1000) adapted to provide information about a first UE to a second UE when said first UE requests a voice session with said second UE, comprising:
   - an identity receiving unit (1003) adapted to receive the identity of said first UE from a network node (1030);
   - an information retrieval unit (1004) which is adapted to send a request for retrieval of information associated with said first UE to a memory (1010), wherein said request comprises said identity of said first UE; and
   - a publishing unit (1005) which is adapted to set up a broadcasting session from said service server (1000) via at least one network node to said second UE; and wherein said publishing unit is adapted to publish said retrieved information to said second UE using said broadcasting session.

15. A service server according to claim 14, further comprising:
   - a communication unit (1106) adapted to register said first UE to said service server, said communication unit is further adapted to enable said first UE to select one or more services such that said services are associated with said first UE, said
communication unit is further adopted to subscribe said selected services such that said information retrieval unit retrieves information which further is associated with said subscribed services.

16. A service server according to any one of claims 14 or 15, wherein said publishing unit is further adapted to use an Unstructured Supplementary Service Data (USSD) session as broadcasting session and wherein said publishing unit is further adapted to publish said information in a USSD-message to said second UE via said gateway.

17. A service server according to any one of claims 14 or 15, wherein said publishing unit is further adapted to use a Calling Name Presentation (CNAP)-session as a broadcast session and wherein said publishing unit is further adapted to publish said information in a CNAP-message to said second UE via said gateway.

18. A service server according to claim 15, wherein said communication unit is further adapted to be in communication connectivity with said first UE by using a USSD-session between said first UE and said communication unit.

19. A service server according to any one of the claims 14 to 18, wherein said publishing unit is further adapted to publish information associated with said first UE comprising information about the geographical location of said first UE.

20. A service server according to any one of the claims 14 to 19, wherein said information retrieval unit is further adapted to retrieve information comprising whether or not said identity of the first UE is registered to a first memory and/or a second memory.
21. A service server according to claim 20, wherein said information retrieval unit is further adapted to retrieve information associated with trusted UEs from said first memory.

22. A service server according to claim 21, wherein said information retrieval unit is further adapted to retrieve information associated with a soliciting parties and/or distrusted parties and/or spam from said second memory.

23. A service server according to any one of claims 14 to 19, wherein the information retrieval unit is further adapted to retrieve information representing a message which is provided by said first UE to said memory.

24. A service server according to claim 23, wherein said information retrieval unit is further adapted to retrieve said information representing the message such that said message comprises information from at least one social network server and/or a microblog.

25. A service server according to claim 24, wherein said social network server and/or microblog is one or more selected from: Twitter, Facebook, Hi5, Hyves, Orkut, Renren, KaixinO01, Xiaoyou, RenRen, Taobao taijianghu, Baidu Tieba, Sina weibo, Sohu weibo, Myspace, LinkedIn, Tagged, Cyworld, Foursquare, Gowalla, Jaiku and identi.ca.

26. A method according to any one of claims 24 to 25, wherein said information retrieval unit is further adapted to retrieve said information representing a status message from an information feed which is associated with said first UE.
Fig 1

User Equipment
User Interface
101 102
USSD Handler

Network node
Application unit
111 112
USSD Handler

100

Fig 2

200 First UE
210 Service Server
220 Content Server

1:1 register
1:3 query for services
1:4 selected services
1:6 query for login
1:7a provide login details

1:2 create account
1:5 set-up proxy
1:7b initiate session
1:8 set-up permission
1:9 permission status
Fig. 4
Incoming call from @davidalmstrom
"sitting in a bus in Beijing wondering what to do"
Fig 7
Start

Registering UEs 801

Storing advertisement 802

Selecting UEs 803

No

Selected UEs idle? 804

Yes

Preparing delivery 805

Publish advertisement to UE 806

Publish more? 807

Yes

No

End

Fig 8
Start

Requesting call

Providing ID

Querying a first database

ID exists in first database?

Yes

No

Querying a second database

Handling information

Providing information to broadcast gateway

Establishing broadcast session

_publishing information

End

Fig 9
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

H04L 12/18(2006.01)i
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: H04L 12/-

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 practicable, search terms used)

CPRS, CNKI, EPODOC, WPI voice, broadcast+, session, establish+, identi+, request, information, message, provid+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>US2005180553A1 (Richard Garrett Moore) 18 Aug. 2005 (18.08.2005) the abstract, the description paragraphs [0021] to [0025], figures 1-4</td>
<td>1,14</td>
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<td>A</td>
<td>CN101472235A (HUAWEI TECH CO LTD) 01 Jul. 2009 (01.07.2009) the whole document</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
  “A” document defining the general state of the art which is not considered to be of particular relevance
  “E” earlier 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
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  “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
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  “&” document member of the same patent family

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11 May 2011 (11.05.2011)

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