



Telecommunication system and method for transferring information between an intelligent network control unit and a terminal.

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This invention relates to a telecommunication system for transferring telephone calls and/or data between a first terminal and at least one second terminal, comprising: a telecommunication network for the transfer of the telephone calls and/or the data; an

10 Intelligent Network (IN) control unit, coupled to the telecommunication network for providing Intelligent Network services in the telecommunication network; and a message server unit, coupled to the telecommunication network for receiving a first message from one of the terminals and for sending a second message to at least one  
15 of the terminals. The invention further relates to a method for transferring information in such telecommunication system, from the IN control unit to at least one of the terminals and vice versa, and the invention relates to the use of the first and the second message in such telecommunication system.

20 Telecommunication systems for making telephone calls, and transferring data, comprising a telecommunication network such as a Public Switched Telecommunications Network (PSTN) or a Public Land Mobile Network (PLMN), are often equipped with Intelligent Network (IN) services. These IN services enhance the functionality of the  
25 telecommunication system and allow for personalised services offered by or via the telecommunication system. IN services have been described in detail in the ITU-TS Recommendation Q.1200. These services comprise for example short number services allowing the user to contact a personal voice mail box using a short, generic number,  
30 personal number services, where a number is coupled to a person instead of to a telephone extension. Also IN services comprise pre-paid services, toll free calling services, credit-card services and Virtual Private Network (VPN) services, allowing groups of users, such as employees of a company to make use of a public  
35 telecommunication system while obtaining a functionality comparable to a private telecommunication network such as a Private Branch eXchange (PBX).

To be able to execute these and other IN functions, an IN control unit, such as a Service Control Point (SCP) is provided in  
40 the telecommunication system. The IN control unit controls the IN

functions: e.g. it re-routes telephone calls, it interprets short numbers, it can trace the position of a mobile user, it can enable, block or interrupt telephone calls and can keep record on call-credit information in the case of a pre-paid user. As the IN service is a personalised service, the required actions that have to be performed by the IN control unit differ from user to user. Therefore the IN control unit comprises user specific data for every user that has access to IN functions. These data can comprise a user profile defining which IN services have been activated for the user as well as user specific parameters for these IN services. Also the data can comprise other user specific data, such as the location of the mobile terminal of the user. Besides the user specific data, the IN control unit also holds an amount of generic, i.e. non user specific data such as information about the call charges per time unit.

To be able to make optimum use of the capabilities of IN services, it is required that the user of these services has access to the generic and user specific data as outlined above. Also other persons may find a need to have access to these data, such as a facility manager of a company, who wants to monitor the employees making use of the IN services, or a parent, who wants to be able to supervise the telephone extensions of his/her children.

A problem is that it is difficult to transfer data between the IN control unit and a user. It is for example difficult to transfer generic and user specific data, which is related to IN functions, such as call-charges and call-credits of pre-paid terminals, from the IN control unit to a terminal. Also, the user or an other authorised person cannot have easy access to the generic data and to the user specific data related to the respective IN functions as well as does not have the capability to easily send data to the IN control unit, for example to change a profile. This means that it is difficult for a user to get information such as about which services are currently active and that it is difficult for a user to change his or her profile. Also for other persons, as for example facility managers having an authorisation to do so, it is difficult to obtain or change such data.

A known solution, at least for an aspect of this problem is to transform the data from the IN control unit into voice by a text to speech conversion unit which is located in a Mobile Switching Center (MSC). Once converted to speech, a speech signal is transmitted from the MSC to the terminal of the user. In this way the user is able to

listen to the data requested. A disadvantage is that text to speech conversion is a one-way connection: To enable the user to not only receive information but also to transmit information, additional solutions are required. An other disadvantage is that this solution  
5 requires the full bandwidth of a voice signal, which forms an additional load on the system. Still an other disadvantage is that it is regarded as a quite user-unfriendly, sometimes even irritating solution, because getting the required information can be time consuming for the user and because the user might have difficulties  
10 to obtain an overview in the case of a large amount of data. Also a disadvantage of this solution is that users roaming from other countries or non-native users might not be able to understand the specific language, requiring language selection options, which further complicates the solution.

15 Another known solution for the above mentioned problem is to send unstructured supplementary service data (USSD) from a mobile station to the SCP and vice-versa. A disadvantage is that it is not a very user friendly solution, because the instructions a user sends to the SCP generally consist of numeric codes, which the user has to  
20 remember or lookup in a list, or which codes must have been pre-programmed in the mobile station. An other disadvantage is that this solution only functions when the mobile station is switched on: in the case a mobile station has been switched off and the IN control unit tries to transmit data to this user, no connection to the mobile  
25 station can be made and the SCP has to accept a failure or has to retry to transmit the data.

An object of the invention is to remove or at least reduce the drawbacks of the prior art. Another object of the invention is to simplify the use of IN services. Also an object of the invention is  
30 to make the transfer of data between the IN control unit and a user simple and user friendly. A further object of the invention is to allow for easy transfer of information from the IN control unit to a terminal. Also an object is to give users or other authorised persons easy access to the generic and user related data in the IN control  
35 unit and the ability to easily change their profiles. Another object of the invention is to open-up opportunities for providing new intelligent services that can be created because of making the data and profiles accessible.

To achieve the above and other goals the telecommunication  
40 system according to the invention is characterised in that the IN

control unit is adapted to send the first message to the message server unit and/or to receive the second message from the message server unit, wherein the IN control unit is advantageously adapted to define a contents of the first message and/or interpret a contents of the second message for taking a specific action. An advantage is that this creates a possibility for easy and user friendly communication from the IN control unit via the message server unit to at least one of the terminals and/or from one of the terminals via the message server unit to the IN control unit. Another advantage is that the communication uses an existing type of messages, which is known and familiar to the user. Also an advantage is that, apart from the adaptations in the IN control unit and the message server, no substantial modifications are required for the rest of the telecommunication system. A further advantage is that it is relatively easy to develop as well as relatively easy to standardise, because an existing type of messaging is used. Still a further advantage is that most existing terminals are prepared to use the new functionality that can be offered, because a substantial amount of existing terminals already have the messaging functionality implemented. Still a further advantage is that message server units have been implemented in a large amount of communication network technologies, making the invention widely usable. The message can be sent to a single terminal or to a group of terminals, the latter may be useful for VPN services.

As such, involvement of the intelligent network control unit in the sending and receiving of messages is known from WO 98/28920, where a service control point (SCP), which performs IN functions in a mobile telecommunications network, is involved in the handling of Short Messages (SM). However, the SCP is only involved in the routing of the SM's, and is not able to generate or interpret these messages. Furthermore, the SCP and the Short Message Service Center (SMSC) are not directly coupled.

Advantageously the IN control unit is adapted to be coupled to the message server unit, enabling the IN control unit to send the first message and/or receive the second message to and/or from the message server unit, where advantageously the IN control unit is coupled to the message server unit via an interface. Because the IN control unit is adapted to be coupled to the message server unit, additional traffic generated by the messages sent between the IN control unit and the message server unit generates no supplementary

load on the regular interfaces between the IN control unit and the telecommunication network and the messages can be lead via an additional interface, such as a digital wired connection.

Advantageously the IN control unit is coupled to the message server unit via an interface, a protocol for communication via the interface comprising Simple Mail Transfer Protocol (SMTP) or Short Message Peer to Peer (SMPP) Protocol running on top of Transmission Control Protocol / Internet Protocol (TCP/IP). By using these standardised protocols, the interchangeability between equipment from various manufacturers of components for such telecommunication systems is facilitated, which is especially advantageous for an operator or owner of a telecommunication system or telecommunication network.

The telecommunication network can comprise a mobile telecommunication network, such as a GSM network where the IN control unit can comprise a Service Control Point (SCP). The GSM network can, for example, be expanded with advanced data communication technology such as Wireless Access Protocol (WAP) and General Packet Radio Service (GPRS).

Also, the telecommunication network can comprise a Wideband Code Division Multiple Access (W-CDMA) network, in which case the IN control unit can comprise a Service Capability Server (SCS). The SCS is connected to at least one Application Server (AS), which assists the SCS by performing specific tasks. Each AS is connected to the SCS via a respective interface. The respective interface to the at least one AS can comply to the Parlay Application Programming Interface (API) standard. Also the respective interfaces can differ from each other.

Also other solutions are possible, the telecommunication network can comprise for example a Code Division Multiple Access (CDMA) network, a Time Division Multiple Access (TDMA) network or a Personal Digital Cellular (PDC) network.

Furthermore it is possible that at least two telecommunication networks are coupled, such as two telecommunication networks each covering a different geographic area, or two telecommunication networks each operated by a different operator. In this case each one of the terminals can be restricted to operate in a single network or can be enabled to operate in a number of networks.

Advantageously at least one of the terminals comprises a Mobile Station, a computer system or a Public Switched Telephone Network

(PSTN) extension. This makes easy communication between the IN control unit and various types of terminals possible.

Advantageously the message server unit comprises a Short Message Service Center (SMSC) and at least one of the messages comprises a Short Message (SM) according to the GSM Short Message Service (SMS) standard, or the 3rd Generation Partnership Project (3GPP) SMS standard. By using this known, widespread message type, existing terminals that already have an SMS functionality integrated are able to use the new features introduced by the subject of the invention. Furthermore, sending and receiving a SM is simple, convenient and well known to most users of telecommunication systems. Additionally, the use of Short Message only has low bandwidth requirements, putting only little additional load on the telecommunication network. Also sending and receiving of a Short Message is possible when the terminal is occupied in a telephone call, which increases the ways of use and increases the possibilities for services that can be offered by means of the subject of the invention, as will be explained in more detail below.

Each Short Message comprises a maximum content which is equivalent to 160 characters. It is possible that at least two Short Messages are coupled, which is known within the GSM SMS standard and the 3GPP SMS standard. This allows to send a long content exceeding the above maximum content, making use of Short Messages. The Short Message technology allows to make use of additional protocols in the content of the message, such as WAP, HTML or e-mail, so that these protocols can be used also, offering numerous possibilities for future uses and services. At least one of the messages can comprise alphanumerical, textual, graphical or moving pictorial, video information, so that various kinds of messages can be sent and/or received by the terminal, such as text, pictograms etc. enabling to build a user friendly user interface for the IN functions.

The invention further comprises a method for transferring information in a telecommunication system as outlined above, from one of the terminals to the IN control unit, the method comprising: preparing the first message and storing it in said terminal, the first message comprising the information; transferring the first message from said terminal to the message server unit; and transferring the second message from the message server unit to the IN control unit, the second message comprising the information. Also

the invention comprises a method for transferring information in the telecommunication system, from the IN control unit to at least one of the terminals, the method comprising: preparing a first message in the IN control unit, the first message comprising the information; 5 transferring the first message from the IN control unit to a message server unit; and transferring the second message from the message server unit to at least one terminal, the second message comprising the information. These methods allows to transfer a substantial amount of useful information related to IN functions between the IN 10 control unit and the user of a terminal in a user friendly way.

The messages can comprise user data or generic data that is available in the IN control unit, such as information about the location of one of the terminals, about an account of a subscriber of one of the terminals, about a call-credit balance of one of the 15 terminals, about a charge of a telephone call or about the operation of the IN control unit.

Furthermore the preparing and sending of at least one of the messages can be initiated by an event occurring in the telecommunication system, such as a change in a location of one of 20 the terminals, an exceeding of predefined call credit limits, a change in a user profile of one of the terminals, a set-up or termination of a call, an exceeding of a predefined time period, a message received from one of the terminals or a change in the operation conditions of the IN control unit. This allows to further 25 increase functionality by sending the information at a suitable moment, which is initiated by a corresponding, suitable event occurring in the network. This makes it possible to offer advanced functionality as will be outlined below.

Also the invention comprises a use of the first and the second 30 message in a telecommunication system as outlined above to transfer information from the IN control unit to at least one of the terminals, and a use of the first and the second message in such telecommunication system to transfer information from one of the terminals to the IN control unit.

35 A specific use is to send textual information about the charge of a call to a user of a terminal, wherein the information about the charge of the call can be sent during the call or after the call. Another use is to send an indication to a user when a terminal of the user enters or leaves a certain location area.



A further use is to send an indication to a terminal when another one of the terminals enters or leaves a certain location area. Still a further use is to send information about the location of one of the terminals to this terminal or to another one of the terminals. Again  
5 another use is to monitor a subscription of one of the terminals from another one of the terminals. In this use, a warning can be sent to said other one of the terminals when said one of the terminals reaches a certain credit threshold. Also in this use a warning can be sent to the other one of the terminals when the one of the terminals  
10 performs a call with a call charge that goes beyond a predefined financial limit.

Again a further use is to send a message to one of the terminals attempting to call another one of the terminals, when the other one of the terminals can not be reached. In this use a user of the other  
15 one of the terminals can at least partly define the contents of the message. Still again a further use is to send a call overview to one of the terminals, the call overview can be comprised in an e-mail. A further use is to change a user profile from one of the terminals. Other uses include to send an overview of a user profile to one of  
20 the terminals, where the user profile can be comprised in an e-mail, to upgrade a balance of a pre-paid account from a Visiting Public Land Mobile Network (VPLMN), or to inform an operator about an operating condition of the IN control unit by sending information about the operating condition to one of the terminals, where the  
25 information about the operating condition can comprise status information, traffic-load information and/or error message information.

Further features and advantages will become clear from the appended drawings, illustrating non-limiting embodiments of the  
30 invention, in which:

Fig. 1 shows a block diagram of a telecommunication system according to the prior art;

Fig. 2 shows a block diagram of a telecommunication system according to the invention; and

35 Fig. 3 shows a block diagram of another telecommunication system according to the invention.

Fig. 1 shows an Intelligent Network control unit, such as a Service Control Point (SCP) 1. Also, Fig. 1 shows a telecommunication network, in this example a Public Land Mobile Network PLMN formed by  
40 a GSM network. From the GSM network only a few parts are shown: a

Mobile Switching Center (MSC) 2 which is coupled to a Short Message Service Center (SMSC) 3. In the coverage area 5 of the GSM network, Mobile Stations (MSs) 6a, 6b, functioning as terminals, can be coupled in a wireless way to the MSC 2 by means of Base Stations and Base Station Controllers. The Base Stations and Base Station Controllers are known per se and therefore not shown. The coupling between the GSM network and the SCP 1 is implemented by means of an interface 4 between the MSC 2 and the SCP 1. The MSC 2 performs the switching operations for setting up normal telephone calls for the MS 6a, 6b. If, for example during set-up of a telephone call, the MSC 2 recognises that the MS 6a, 6b has access to IN functions, then the MSC 2 sends data to the SCP 1, and the MSC 2 receives instructions from the SCP 1 about the handling and routing of the call. If a first MS 6a sends a message, in this case a Short Message, to a second MS 6b, then the Short Message is first sent from the first MS 6a via the MSC 2 to the SMSC 3. The SMSC 3 then attempts to deliver the SM to the second MS 6b, which has been assigned by the first MS, by sending the SM via the MSC 2 to the second MS 6b.

In Fig. 2, similar to Fig. 1, the telecommunication system comprises a SCP 11 functioning as IN control unit and a telecommunication network, in this example also a Public Land Mobile Network formed by a GSM network. Also similar to Fig. 1, only a few parts from the GSM network are shown. A Mobile Switching Center (MSC) 12 which is coupled to a Short Message Service Center (SMSC) 13. Identical to Fig. 1, Mobile Stations (MS) 16a, 16b can be coupled in a wireless way, in the coverage area of the GSM network, to the MSC 12 by means of Base Stations, not shown, and Base Station Controllers, also not shown. The coupling between the GSM network and the SCP 11 is, similar to Fig. 1 implemented by means of an interface 14 between the MSC 12 and the SCP 11. In addition to the telecommunication system in Fig. 1, the system in fig. 2 has an interface 17 between the SCP 11 and the SMSC 13. This interface 17 makes it possible to implement direct communication between the SMSC 13 and the SCP 11. In this example, the interface 17 makes use of SMTP, and TCP/IP, Transmission Control Protocol running on top of Internet Protocol, which protocols are supported by most vendors of SMSC. The SCP 11 is adapted to communicate using these protocols, by means of suitable adaptations which include suitable programming. The interface 17 allows to transmit Short Messages between the SMSC 13 and the SCP 11, which Short Messages might be encapsulated by other

data, following the specifications of the communication protocols used. In the case a MS 16a, 16b which has access to IN functions, is involved in an operation such as the set-up of a telephone call, the MSC 12 sends data to the SCP 11 and the MSC 12 receives data back  
5 from the SCP 11 containing instructions, in the way described with fig. 1. In the case the user of a MS 16a wants to check his IN profile containing the settings and parameters for the IN functions, a Short Message is prepared in the MS 16a and is sent, via the MSC 12 to the SMSC 13. Now the SMSC 13 sends a second Short Message,  
10 containing the information from the first Short Message to the SCP 11 via the interface 17 between the SMSC 13 and the SCP 11. The SCP 11 is adapted by means of suitable programming to interpret the message received from the SMSC 13. Next the SCP 11 prepares a Short Message containing the required data and sends this Short Message to the SMSC  
15 13. Then the SMSC 13 again sends a Short Message, containing the required data to the MS 16a.

Fig. 3 shows a telecommunication system comprising a mobile telecommunications network, in this case a so-called 3rd generation W-CDMA network. The IN control unit is implemented by means of a  
20 Service Capability Server (SCS) 21, which is connected to a number of Application Servers (AS) 28a, 28b, 28c. The SCS 21 is connected to a PSTN 29, in this case an Integrated Services Digital Network (ISDN), to a computer network via a Voice over IP (VoIP) server 30, and to a Public Land Mobile Network PLMN, in this case a 3rd generation, W-  
25 CDMA network, from which only an MSC 22 and a coverage area 25 are shown, in which Mobile Stations 26a, 26b, acting as terminals, can be coupled wirelessly to the MSC 22. The connection between the SCS 21 and the MSC 22 is implemented by means of an interface 24. Further, the MSC 22 is connected to an SMSC 23, for the handling of Short  
30 Messages sent from or to a terminal, such as a Mobile Station 26a, 26b, as described with fig. 1 and fig. 2. The SCS 21 is coupled to the SMSC 23 via an interface 27, and the SCS 21 is adapted to receive as well as to send Short Messages. This allows the user of a Mobile Station 26a to communicate in an easy way with the SCS by sending a  
35 Short Message. This Short Message is routed from the Mobile Station 26a, via the MSC 22 to the SMSC 23. The SMSC 23 in turn sends a Short Message to the SCS 21 via the interface 27. The SCS 21 is assisted by at least one suitably programmed AS 28a, 28b, 28c to interpret the contents of a Short Message received and to define the contents of a  
40 Short Message which is to be sent. If data, such as a profile is to

be sent from the SCS to a Mobile Station 26a, the SCS 21 prepares a Short Message and sends this via the interface 27 to the SMSC 23. The SMSC 23 in turn sends a Short Message via the MSC 22 to the Mobile Station 26a.

5        Apart from the uses given above, the invention allows to easily implement a large amount of other advanced, user friendly functions. It is, for example, possible to send information to a computer system residing at the house of a subscriber. A use could be that, when the Mobile Station of the subscriber approaches the location area of his  
10    house, a message is sent by the IN control unit to the computer system, enabling to activate for example the heating system of the house.

      Another example could be to supervise children. When a child leaves a predefined location area, a message is sent to the  
15    telephones of its parents.

      Still another example is to update an IN profile or check other IN settings from a portable computer or Personal Digital Assistant (PDA) via a personal web-page. Alternatively, an SCP could write all relevant information to a web-page. To accomplish this, the IN  
20    control unit sends messages containing web content such as HTML to the message server, which sends messages to a web server. The web server can be inspected from a Mobile Station equipped with a browsing functionality.

## Claims

1. A telecommunication system for transferring telephone calls and/or data between a first terminal and at least one second terminal, comprising:
- a telecommunication network for the transfer of the telephone calls and/or the data;
  - an Intelligent Network (IN) control unit, coupled to the telecommunication network for providing Intelligent Network services in the telecommunication network; and
  - a message server unit, coupled to the telecommunication network for receiving a first message from one of the terminals and for sending a second message to at least one of the terminals, characterised in that the IN control unit is adapted to send the first message to the message server unit.
2. The telecommunication system according to claim 1, wherein the IN control unit is adapted to define a contents of the first message.
3. A telecommunication system for transferring telephone calls and/or data between a first terminal and at least one second terminal, comprising:
- a telecommunication network for the transfer of the telephone calls and/or the data;
  - an Intelligent Network (IN) control unit, coupled to the telecommunication network for providing Intelligent Network services in the telecommunication network; and
  - a message server unit, coupled to the telecommunication network for receiving a first message from one of the terminals and for sending a second message to at least one of the terminals, characterised in that the IN control unit is adapted to receive the second message from the message server unit.
4. The telecommunication system according to claim 3, wherein the IN control unit is adapted to interpret a contents of the second message for taking a specific action.
5. The telecommunication system according to any of the preceding claims, wherein the IN control unit is adapted to be coupled to the message server unit, enabling the IN control unit to send the first message and/or receive the second message to and/or from the message server unit.

6. The telecommunication system according to claim 5, wherein the IN control unit is coupled to the message server unit via an interface.
7. The telecommunication system according to claim 6, wherein the IN control unit is coupled to the message server unit via an interface, a protocol for communication via the interface comprising Simple Mail Transfer Protocol (SMTP) or Short Message Peer to Peer (SMPP) Protocol.
8. The telecommunication system according to any of the preceding claims, wherein the telecommunication network comprises a mobile telecommunication network.
9. The telecommunication system according to any of the preceding claims, wherein the mobile telecommunication network comprises a Globale Systeme Mobile (GSM) network.
10. The telecommunication system according claim 9, wherein the IN control unit comprises a Service Control Point (SCP).
11. The telecommunication system according to any of claims 1 - 9, wherein the mobile telecommunications network comprises a Wideband Code Division Multiple Access (W-CDMA) network.
12. The telecommunication system according to claim 11, wherein the IN control unit comprises a Service Capability Server (SCS) which is connected to at least one Application Server (AS), which assists the SCS by performing specific tasks, each AS having a respective interface to the SCS.
13. The telecommunication system according to claim 12, wherein the respective interface to the at least one AS complies to the Parlay Application Protocol Interface (API) standard.
14. The telecommunication system according to any of the preceding claims, wherein at least one of the terminals comprises a Mobile Station (MS).
15. The telecommunication system according to any of the preceding claims, wherein at least one of the terminals comprises a computer system.
16. The telecommunication system according to any of the preceding claims, wherein at least one of the terminals comprises a Public Switched Telephone Network (PSTN) extension.
17. The telecommunication system according to any of the preceding claims, wherein the message server unit comprises a Short Message Service Center (SMSC).

18. The telecommunication system according to any of the preceding claims, wherein at least one of the messages comprises a Short Message (SM) according to the GSM Short Message Service (SMS) standard or 3rd Generation Partnership Project (3GPP) SMS standard.
- 5 19. The telecommunication system according to claim 18, wherein at least two Short Messages (SM) are coupled.
20. The telecommunication system according to any of the preceding claims, wherein at least one of the messages comprises a content which complies to the Wireless Application Protocol (WAP).
- 10 21. The telecommunication system according to any of the preceding claims, wherein at least one of the messages comprises a content which complies to HTML.
22. The telecommunication system according to any of the preceding claims, wherein at least one of the messages comprises an e-mail.
- 15 23. The telecommunication system according to any of the preceding claims, wherein at least one of the messages comprises alphanumerical, textual information.
24. The telecommunication system according to any of the preceding claims, wherein at least one of the messages comprises graphical  
20 information.
25. The telecommunication system according to any of the preceding claims, wherein at least one of the messages comprises moving pictorial, video information.
- 25 26. A method for transferring information in a telecommunication system according to claim 1, from one of the terminals to the IN control unit, the method comprising:
- preparing the first message and storing it in said terminal, the first message comprising the information;
  - transferring the first message from said terminal to the message  
30 server unit; and
  - transferring the second message from the message server unit to the IN control unit, the second message comprising the information.
27. A method for transferring information in a telecommunication system according to claim 3, from the IN control unit to at least  
35 one of the terminals, the method comprising:
- preparing a first message in the IN control unit, the first message comprising the information;
  - transferring the first message from the IN control unit to a message server unit; and
  - 40 - transferring the second message from the message server unit to

at least one terminal, the second message comprising the information.

28. The method according to claim 26 or 27, wherein the telecommunication network comprises a mobile telecommunication network.

29. The method according to claim 28, wherein the mobile telecommunication network comprises a Globale Systeme Mobile (GSM) network.

30. The method according to claim 29, wherein the IN control unit comprises a Service Control Point (SCP).

31. The method according to any of claims 26 - 29, wherein the mobile telecommunications network comprises a Wideband Code Division Multiple Access (W-CDMA) network.

32. The method according to claim 31, wherein the IN control unit comprises a Service Capability Server (SCS) which is connected to at least one Application Server (AS), which assists the SCS by performing specific tasks, each AS having a respective interface to the SCS.

33. The method according to any of claims 26 - 32, wherein at least one of the terminals comprises a Mobile Station (MS).

34. The method according to any of claims 26 - 33, wherein at least one of the terminals comprises a computer system.

35. The method according to any of claims 26 - 34, wherein at least one of the terminals comprises a Public Switched Telephone Network (PSTN) extension.

36. The method according to any of claims 26 - 35, wherein the message server unit comprises a Short Message Service Center (SMSC).

37. The method according to any of claims 26 - 36, wherein at least one of the messages comprises a Short Message (SM) according to the GSM Short Message Service (SMS) standard or 3rd Generation Partnership Project (3GPP) SMS standard.

38. The method according to claim 37, wherein at least two Short Messages (SM) are coupled.

39. The method according to claim 37 or 38, wherein at least one of the messages comprises a content which complies to the Wireless Application Protocol (WAP).

40. The method according to claim 37 or 38, wherein at least one of the messages comprises a content which complies to HTML.

41. The method according to claim 37 or 38, wherein at least one of the messages comprises an e-mail.



42.The method according to any of claims 26 - 41, wherein at least one of the messages comprises alphanumerical, textual information.

43.The method according to any of claims 26 - 42, wherein at least one of the messages comprises graphical information.

5 44.The method according to any of claims 26 - 43, wherein at least one of the messages comprises moving pictorial, video information.

45.The method according to any of claims 26 - 44, wherein at least one of the messages comprises information about a location of one of the terminals.

10 46.The method according to any of claims 26 - 45, wherein at least one of the messages comprises information about an account of a subscriber of one of the terminals.

47.The method according to any of claims 26 - 46, wherein at least one of the messages comprises information about a call-credit  
15 balance of one of the terminals.

48.The method according to any of claims 26 - 47, wherein at least one of the messages comprises information about a charge of a telephone call.

49.The method according to any of claims 26 - 48, wherein at least  
20 one of the messages comprises information about the operation of the IN control unit.

50.The method according to any of claims 26 - 49, wherein a preparation and/or transfer of at least one of the messages is initiated by an event in the telecommunication system.

25 51.The method according to any of claims 26 - 50, wherein the event comprises a change in a location of one of the terminals, an exceeding of predefined call credit limits, a change in a user profile of one of the terminals, a set-up or termination of a call, an exceeding of a predefined time period, a message received from  
30 one of the terminals or a change in the operation conditions of the IN control unit.

52.A use of the first and the second message in a telecommunication system according to any of the preceding claims 1, 2 and 5 - 25 to transfer information from the IN control unit to at least one of  
35 the terminals.

53.A use of the first and the second message in a telecommunication system according to any of the preceding claims 3, 4 and 5 - 25 to transfer information from one of the terminals to the IN control unit.

54.The use of the first and the second message according to claim 52 or 53 to send textual information about the charge of a call to a user.

55.The use of the first and the second message according to claim 54, wherein the information about the charge of the call is sent during the call or after the call.

56.The use of the first and the second message according to claim 52 or 53 to send an indication to a user when a terminal of the user enters or leaves a certain location area.

57.The use of the first and the second message according to claim 52 or 53 to send an indication to a terminal when another one of the terminals enters or leaves a certain location area.

58.The use of the first and the second message according to claim 52 or 53 to send information about the location of one of the terminals to this terminal or to another one of the terminals.

59.The use of the first and the second message according to claim 52 or 53 to monitor a subscription of one of the terminals from an other one of the terminals

60.The use of the first and the second message according to claim 59, wherein a warning is sent to said other one of the terminals when said one of the terminals reaches a certain credit threshold.

61.The use of the first and the second message according to claim 59, wherein a warning is sent to said other one of the terminals when said one of the terminals performs a call with a call charge that goes beyond a predefined financial limit.

62.The use of the first and the second message according to claim 52 or 53 to send a message to one of the terminals attempting to call an other one of the terminals, when said other one of the terminals can not be reached.

63.The use of the first and the second message according to claim 62, wherein the contents of the message is at least partly defined by a user of said other one of the terminals.

64.The use of the first and the second message according to claim 52 or 53 to send a call overview to one of the terminals.

65.The use of the first and the second message according to claim 64, wherein the call overview is comprised in an e-mail.

66.The use of the first and the second message according to claim 52 or 53 to change a user profile from one of the terminals.

67.The use of the first and the second message according to claim 52 or 53 to send an overview of a user profile to one of the terminals.

68.The use of the first and the second message according to claim 67,  
5 wherein the user profile is comprised in an e-mail.

69.The use of the first and the second message according to claim 52 or 53 to upgrade a balance of a pre-paid account from a Visiting Public Land Mobile Network (VPLMN).

70.The use of the first and the second message according to claim 52  
0 or 53 to inform an operator about an operating condition of the IN control unit by sending information about the operating condition to one of the terminals.

71.The use of the first and the second message according to claim 70,  
wherein the information about the operating condition comprises  
5 status information, traffic-load information and/or error message information.

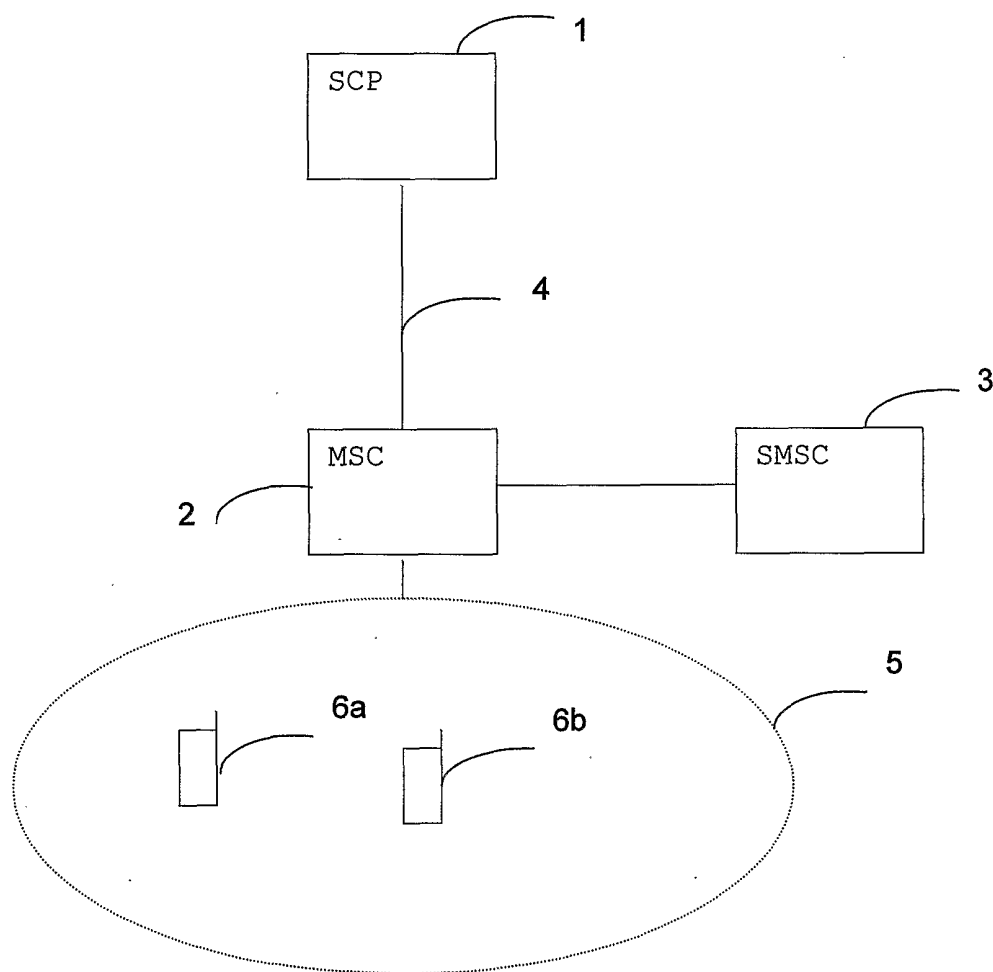


Fig. 1

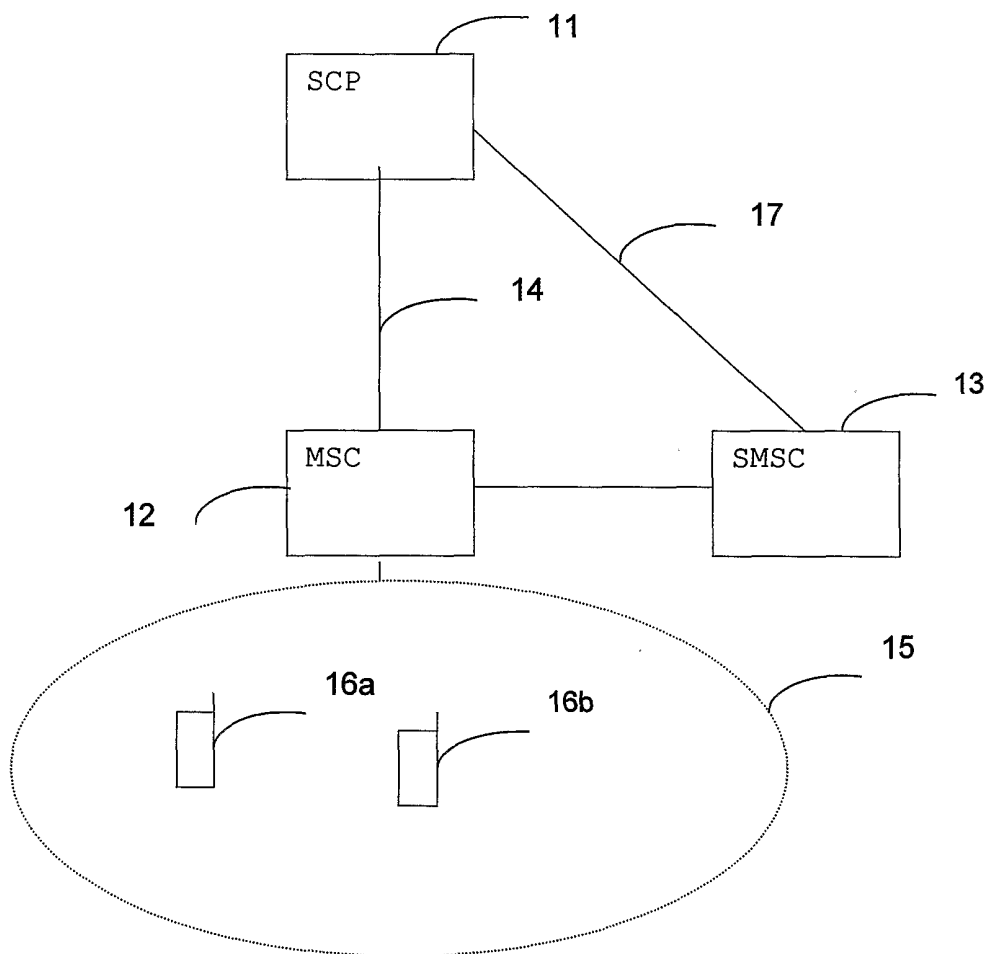


Fig. 2

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/12992

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04Q3/00

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

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q

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

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

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00 10352 A (HUBER ADRIANO ;SWISSCOM AG (CH)) 24 February 2000 (2000-02-24) abstract page 2, line 18 - line 26 page 3, line 7 - line 21 ---	1-71
A	US 5 752 188 A (SVENNESSON BJOERN A ET AL) 12 May 1998 (1998-05-12) abstract column 2, line 28 - line 61 column 3, line 11 - line 40 column 4, line 28 -column 5, line 4 -----	1-71



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
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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
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- "&" document member of the same patent family

Date of the actual completion of the international search

2 August 2001

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International Application No  
PCT/EP 00/12992

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