

A System, Service Provider Unit, and Method For Sending A Message To A Callee

FIELD OF INVENTION

The present invention relates broadly to a system, a service provider unit, and a method for sending a message to a callee, and a data storage medium having stored thereon computer readable code means.

BACKGROUND

In many cases a mobile/fixed-line subscriber may have a message to convey to someone where the same message is to be conveyed to that person on many occasions. For instance, a wife may wish to tell her husband "I love U" at times of her choice, or an air-traveler may wish to notify her family members that she arrived safely at the destination point. There are numerous such instances. Calling or sending a Short Messaging System (SMS) may not be an option due to several reasons: (1) it may be expensive, (2) a call may not be answered and (3) an SMS not received for hours.

In most mobile phones and certain fixed line phones, the caller ID information is matched with the phonebook entries to identify the caller for an incoming call as the number displayed may not be sufficient for the callee to be able to identify the caller. The service providers for the caller and the callee may be different. But in most cases, the flow of caller ID information is facilitated by these service providers as the caller initiates a call to the callee. Caller ID is provided to the callee before he answers the call. This caller ID information is provided about the caller to the callee at no charge to the caller or the callee. In most cases, charges are incurred for the call only after the callee answers the call. In cases when the caller ID information about the caller is provided to the callee, we call such a communication as Caller ID Enabled Calling (CIEC). CIEC is also used to provide for missed call notification to a callee when he does not answer the call. The caller ID information for all those calls that are not answered by the callee are stored under a separate list typically called 'missed calls' in most mobile phones. Fixed line phones may also store missed call information. Usually

'missed calls' do not incur charges to the caller or the callee as charges for the call are incurred only when the callee answers a call.

A need therefore exists to provide <Title> that seeks to address at least one of
5 the abovementioned problems.

SUMMARY

In accordance with a first aspect of the present invention, there is provided a
1 system for sending a message to a callee; the system comprising a service provider
unit; a communication device for enabling a caller to communicate with the service
provider unit; and the service provider unit receiving a communication from the caller
via the communication device, and identifying the callee and one or more pre-
determined caller IDs chosen as representing one or more intended messages for
5 the callee based on the communication from the communication device; and the
service provider unit making one or more missed calls to a phone device of the
callee using the one or more pre-determined caller IDs.

The phone device may identify the one or more caller IDs of the missed calls
1 and display the respective intended messages, wherein message contents are
retrieved from phone book entries stored in the phone for the identified caller ID.

The communication device may comprise one or more of a group consisting
of another phone device, an email device, an SMS device, an IM messaging device
1 and a Web portal associated with the service provider unit.

The phone device may communicate with the service provider unit via a
missed call to a pre-determined phone number associated with the service provider
unit, and the service provider unit determines the callee and the one or more pre-
determined caller ID chosen as representing the one or more respective intended
messages based on a caller ID of the phone device and the pre-determined phone
number.

The email device may communicate with the service provider unit via an email message to a pre-determined email address associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages based on email addresses said email message is sent to/from, content of said email message, or both.

The SMS device may communicate with the service provider unit via an SMS message to a pre-determined phone number associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages based on a caller ID of the phone device and the pre-determined phone number.

The IM messaging device may communicate with the service provider unit via an IM message to a pre-determined IM address associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages based on IM addresses said IM message is sent to/from, content of said IM message, or both.

The caller may communicate with the service provider unit through user input via the Web portal associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller IDs chosen as representing the one or more respective intended messages based on said user input.

The service provider unit may comprise a database for storing one or more lookup tables, and the service provider unit identifies the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on interrogating said one or more lookup tables.

The service provider unit may receive the communication from the caller via the communication device, and identifies a plurality of callees and one or more pre-determined caller IDs chosen as representing one or more intended messages for

the respective callees based on the communication from the communication device; and the service provider unit makes missed calls to a plurality of phone devices of the respective callees using the one or more pre-determined caller IDs chosen as representing the one or more respective intended messages.

The service provider unit may receive first and second communications from the caller via the communication device, and identifies the callee based on one of the first and second communication and the pre-determined caller ID chosen as representing the intended message for the callee from the other communication.

One of the callees identified may be the same as the caller, and the service provider unit identifies the pre-determined caller ID chosen as representing the intended message based on the communication from the communication device, wherein said intended message comprises information requested by the caller, and the service provider unit obtains the requested information from a source and makes a missed call to a phone device of the caller using one or more pre-determined caller IDs chosen as representing the requested information.

The communication to the service provider unit, the making of the missed call, or both, may comprise using access code based dialing.

The service provider unit may be a distributed system comprising a two or more service provider elements disposed in separate communication networks, such that one service provider network is local to the communication device used by the caller, and another service provider element is local to the phone device of the callee.

The service provider unit may comprise a Web portal unit for providing a platform for registration processing for the caller, the callee, or both.

The Web portal may be arranged for over-the-air download of phone book entries associated with the intended message.

One or more pre-determined phone numbers and one or more pre-determined caller IDs representing intended messages may be reserved for popular messages.

The system may be arranged for making timed or event-driven missed calls to the callee.

In accordance with a second aspect of the present invention, there is provided a method for sending a message to a callee; the method comprising the steps of a caller communicating via a communication device with a service provider unit; receiving, at the service provider unit, a communication from the caller via the communication device; and identifying the callee and one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on the communication from the communication device; and making one or more missed calls from the service provider unit to a phone device of the callee using one or more pre-determined caller IDs.

The method may further comprise the phone device identifying the one or more caller IDs of the missed calls and displaying the respective intended messages, wherein message contents are retrieved from a phone book entry stored in the phone for the identified caller ID.

In accordance with a third aspect of the present invention, there is provided a data storage medium having stored thereon computer readable code means for instructing a computer-based communication system to execute a method for sending a message to a callee; the method comprising the steps of a caller communicating via a communication device with a service provider unit; receiving, at the service provider unit, a communication from the caller via the communication device; and identifying the callee and one or more pre-determined caller IDs chosen as representing the intended messages for the callee based on the communication from the communication device; and making one or more missed calls from the service provider unit to a phone device of the callee using one or more pre-determined caller IDs.

The method may further comprise the phone device identifying the one or more caller IDs of the missed calls and displaying the respective intended messages, wherein message contents are retrieved from a phone book entry stored in the phone for the identified caller ID.

In accordance with a fourth aspect of the present invention, there is provided a service provider unit for sending a message to a callee; the service provider unit comprising means for receiving a communication from a caller via a communication device; means for identifying the callee and one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on the communication from the communication device; and means for making one or more missed calls to a phone device of the callee using the one or more pre-determined caller IDs.

In accordance with a fifth aspect of the present invention, there is provided a method for sending a message to a callee; the method comprising the steps of receiving a communication from a caller via a communication device; identifying the callee and one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on the communication from the communication device; and making one or more missed calls to a phone device of the callee using the one or more pre-determined caller IDs.

In accordance with a sixth aspect of the present invention, there is provided a data storage medium having stored thereon computer readable code means for instructing a computer-based service provider unit to execute a method for sending a message to a callee; the method comprising the steps of receiving a communication from a caller via a communication device; identifying the callee and one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on the communication from the communication device; and making one or more missed calls to a phone device of the callee using the pre-determined caller IDs.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of example only and in conjunction with the drawings, in which:

FIG. 1 shows a schematic diagram illustrating a system for MCM in accordance with one embodiment.

FIG. 2 shows a table illustrating the relationship between the callers, the PNs, the MTs and the callees for MCM of the system in FIG. 1 in accordance with one embodiment.

FIG. 3 shows a flow chart illustrating the registration process for MCM in accordance with one embodiment.

FIG. 4 shows a schematic diagram illustrating a system for MCM transcending regional, national and international boundaries in accordance with one embodiment.

FIG. 5 shows a schematic diagram illustrating a system for MCM using an online account in accordance with one embodiment.

FIG. 6 shows a schematic diagram illustrating a system for MCM using SMS, email and/or IM in accordance with one embodiment.

FIG. 7 shows a schematic diagram illustrating a system for MCM with information retrieval in accordance with one embodiment.

FIG. 8 shows a schematic diagram illustrating a system for MCM using access codes based dialling in accordance with one embodiment.

FIG. 9 shows a schematic diagram illustrating a system for MCM using multiple missed calls to identify the MT to use and the callee for which the message is to be conveyed in accordance with one embodiment.

FIG. 10 shows a table illustrating the relationship between the callers, the PNs, the MTs, and the callees for MCM in accordance with one embodiment.

FIG. 11 shows a table illustrating the relationship between the callers, the PNs, the MTs, and the callees for MCM in accordance with one embodiment.

FIG. 12 shows a schematic diagram illustrating a system for GMCM in accordance with one embodiment.

FIG. 13 shows a table illustrating the relationship between the callers, the PNs, the MTs, and the callees for GMCM in accordance with one embodiment.

FIG. 14 shows a schematic drawing of a service provider unit for sending a message to a callee according to one embodiment.

FIG. 15 shows a schematic drawing of a system for implementing the method and system of a service provider unit in one embodiment.

FIG. 16 shows a schematic drawing of a system for implementing the method and system of the communication devices of the caller and callee in one embodiment.

DETAILED DESCRIPTION

Some portions of the description which follows are explicitly or implicitly presented in terms of algorithms and functional or symbolic representations of operations on data within a computer memory. These algorithmic descriptions and functional or symbolic representations are the means used by those skilled in the data processing arts to convey most effectively the substance of their work to others skilled in the art. An algorithm is here and generally, conceived to be a self-consistent sequence of steps leading to a desired result. The steps are those requiring physical manipulations of physical quantities, such as electrical, magnetic or optical signals capable of being stored, transferred, combined, compared and otherwise manipulated.

Unless specifically stated otherwise and as apparent from the following, it will be appreciated that throughout the present specification, discussions utilizing terms such as "determining", "generating", "initiating" or the like, refer to the action and processes of a computer system, or similar electronic device, that manipulates and transforms data represented as physical quantities within the computer system into other data similarly represented as physical quantities within the computer system or other information storage, transmission or display devices.

The present specification also discloses apparatus for performing the operations of the methods. Such apparatus may be specially constructed for the required purposes, or may comprise of a general purpose computer or other device selectively activated or reconfigured by a computer program stored in the computer. The algorithms and displays presented herein are not inherently related to any particular computer or other apparatus. Various general purpose machines may be used with programs in accordance with the teachings herein. Alternatively, the construction of more specialized apparatus to perform the required method steps may be appropriate. The structure of a conventional general purpose computer will appear from the description below.

The present specification also implicitly discloses a computer program, in that it would be apparent to the person skilled in the art that the individual steps of the method described herein may be put into effect by computer code. The computer program is not intended to be limited to any particular programming language and implementation thereof. It will be appreciated that a variety of programming languages and coding thereof may be used to implement the teachings of the disclosure contained herein. Moreover, the computer program is not intended to be limited to any particular control flow. There are many other variants of the computer program, which can use different control flows without departing from the spirit or scope of the invention.

Furthermore, one or more of the steps of the computer program may be performed in parallel rather than sequentially. Such a computer program may be stored on any computer readable medium. The computer readable medium may include storage devices such as magnetic or optical disks, memory chips, or other storage devices suitable for interfacing with a general purpose computer. The computer readable medium may also include a hard-wired medium such as exemplified in the Internet system, or wireless medium such as exemplified in the GSM mobile telephone system. The computer program when loaded and executed on such a general-purpose computer effectively results in an apparatus that implements the steps of the preferred method.

The invention may also be implemented as hardware modules. More particular, in the hardware sense, a module is a functional hardware unit designed for use with other components or modules. For example, a module may be implemented using discrete electronic components, or it can form a portion of an entire electronic circuit such as an Application Specific Integrated Circuit (ASIC). Numerous other possibilities exist. Those skilled in the art will appreciate that the system can also be implemented as a combination of hardware and software modules.

In the following descriptions, the terms "phone number " and "caller ID" have been used. However, it will be appreciated that those terms are technically interchangeable but have been used in the description separately based on common usage of those words.

In one embodiment, we describe a service provider unit 108 for enabling a caller 102 to make missed calls to a callee 104 from a plurality of phone numbers. Both the caller 102 and the callee 104 each have their own phone numbers or caller IDs. The service provider unit 108 is accompanied by backend software and hardware to implement the processes indicated in FIG. 1, and based on the following:

Consider the situation when the caller 102 has 5 callees 104 (Note: Regardless of singularity or plurality of caller and callee, both are represented by the numerals 102 and 104 respectively) and the caller 102 wishes to convey to them 3, 4, 5, 2, 8 pre-agreed messages. The caller 102 tells each callee 104 that "if you get a missed call from this particular number XXX, then this is the particular message AAA that I want to tell to you and if you get a missed call from this particular number YYY, then this is the particular message BBB that I want to tell to you," ... so on and so forth. The message is any arbitrary salutation (E.g. "Hello I miss you") pre-agreed between the caller 102 and callee 104. For example, a caller 102 needs to be able to deliver:

- missed calls from 3 different system numbers for his first callee 104,
- missed calls from 4 different system numbers for his second callee 104,
- missed calls from 5 different system numbers for his third callee 104,
- missed calls from 2 different system numbers for his fourth callee 104 and
- missed calls from 8 different system numbers for his fifth callee 104.

Depending on the callee 104 and the message that the caller 102 wishes to convey to that callee 104, the caller 102 calls one of a plurality of pre-assigned system numbers of the service provider unit 108 and gives that number a missed call. Based on the caller ID of the caller 102 and the system number called by the caller 104, the service provider unit 108 selects a system number to call the callee 104 from, calls the callee 104 from that system number at the callee's phone number, and gives the callee 104 a missed call. Therefore, the caller 102 needs to be able to call at least $3 + 4 + 5 + 2 + 8 = 22$ unique system numbers to identify to the service provider unit 108, the callee 104 and the intended message for that callee 104. Hence, the service provider unit 108 needs to be able to call the callees 104 from at least an equal number of system numbers so that the callees 104 are able to identify the particular caller 102 and the intended message.

Table 200 shown in FIG. 2, describes the relationship between a plurality of callers 202 denoted 1st, 2nd, ..., I-th, ...; the system numbers to be called by the caller, hereinafter referred to as messaging Proxy Numbers (PN) 203; a plurality of callees with their caller IDs denoted by U(I,J) 204; and system numbers from which the callee is to be called, hereinafter referred to as Message Transmitters (MT) 205. Each row of table 200 corresponds to a particular caller 202. Although not all callers 202 will register for all the PNs 203, it is expected that each caller 202 has multiple messages to be conveyed.

In a modification of this example, it will be appreciated that each callee denoted U(I,J) 204 may be registered with a plurality of MTs 205 for sending multiple messages to the same callee 204 from different MTs 205.

This table 200 is a logical representation of the data in the database residing within the service provider unit 108 and is populated whenever callers 102 register the callees 104 and the MTs under the PNs with the service provider unit 108. The database is also searched when the service provider unit 108 needs to determine the MT to use for MCM, based on the PN and the caller 102. The registration process shall be explained in the later part of the text.

The steps taken by the caller 102 are as follows: The caller 102 registers the callees 104 and the MTs under the PNs. The caller 102 also stores PNs under suitable entries in the caller's 102 phonebook for ease of use. The caller 102 also informs the callees 104 of the registration and advises the callees 104 to make suitable entries in the callees' 104 phonebook. When the caller 102 wishes to convey a message to a callee 104, the caller 102 selects the suitable entry from the caller's 102 phonebook and makes a call. Either the service provider unit 108 or the caller 102 terminates the call after the caller ID of the caller 102 is captured by the service provider unit 108.

The steps taken by the service provider unit 108 are as follows: The service provider unit 108 allows the callers 102 to register PNs and the MTs with the service provider unit 108. The service provider unit 108 ensures that the callee 104 is registered no more than one time for each MT. When the caller 102 calls one of the PNs of the service provider unit 108, the service provider unit 108 captures the caller ID of caller 102 and terminates the call. Based on the caller ID of the caller 102 and the PN called by the caller 102, the service provider unit 108 searches the database to determine the callee 104 and the MT to be used to call that callee 104. The service provider unit 108 calls the callee 104 from the MT and terminates the call after the caller ID of the MT is captured by the callee's 104 phone.

The steps taken by the callee 104 are as follows: The callee 104 is informed of the registration by the caller 102 and is advised to make suitable entries in the callee's 104 phonebook. The callee 104 receives a call from one of the MTs of the service provider unit 108. Either the service provider unit 108 or the callee 102 terminates the call after the caller ID of the MT is captured by the callee's 104 phone. The callee's 104 phone matches the caller ID of the MT with the callee's 104 phonebook and displays the suitable entry containing the caller's 102 identity and the message to be conveyed.

FIG. 3 shows a flow chart for the process of registration of callees 104 by the caller 102 with the service provider unit 108 for MCM. The service provider unit 108 makes the PN and MT available to the caller 102 for registration for the MCM service. This is done via a web-interface, SMS, calling, emailing or IM. All of this registration information resides in a database and the programming of it would be apparent to those skilled in the art.

The registration process is as follows:

Step 302: The caller 102 registers with the service provider unit 108 for MCM service.

Step 304: The caller 102 enters the callee 104 into service provider unit 108.

Step 306: The service provider unit 108 provides the caller 102 with available PNs and MTs.

Step 308: The caller 102 selects the PN and MT, and saves the PN into the caller's 102 phonebook. The service provider unit 108 updates the table entries in the system's 108 database for caller 102.

Step 312: The service provider unit 108 requests confirmation with caller 102 if all callees 104 have been entered. If all entries have been made, the service provider unit 108 goes to Step 314 and exits from the registration process, or else the service provider unit 108 returns to Step 304 to accept further entries.

Step 314: The system exits from the registration process.

Each callee 104 can only be registered a maximum of one time for each MT. At the time of registration by the caller 102, the service provider unit 108 keeps track of prior registrations and allows the caller 102 to use only those MTs for a callee 104 that have not been used for the same callee 104 by other callers 102.

Once a registration is complete, the caller 102 preferably stores the PNs in the caller's 102 phonebook under suitable headings for easy identification of callee 104 together with the intended message. It is expected that the process of registration is done much more infrequently than the process of making calls. The steps for the caller 102 are preferably simplified by over-the-air download of information and a software program on the phone that assists the caller 102 via graphic user interface (GUI) and other such techniques. Such programming is understood by one skilled in the art.

Similarly, the callee 104 preferably stores the MTs in the callee's 104 phonebook as phone book entries. The steps for the callee 104 are preferably simplified by over-the-air download of information and a software program on the phone that assists the callee

104 via graphic user interface (GUI) and other such techniques. Such programming is understood by one skilled in the art.

For a self-contained system, it is possible that the PNs are also the MTs at the same time and thus share the same system numbers. FIG. 4 shows a service provider unit 408 that may also be designed such that the PNs are local to the callers 402 and the MTs are local to the callees 404. This can be done to ensure smooth flow of caller ID information and provide MCM that transcends regional, national and international boundaries. In that respect, the service provider unit 408 shall preferably be divided into several sub-systems that are located in a geographically dispersed manner. Furthermore, these sub-systems can communicate and exchange information via any of the known networks such as the internet and/or other telecommunications network 406.

In a modification of one embodiment, a caller 102 can also program the number of rings to both PN and MT. Hence a call to a PN terminated by the caller 102 after a certain number of rings will imply a different pair of MT and callee 104. Even there, the caller 102 may program the service provider unit 108 to call the callee 104 from the MT for a certain number of rings before terminating the call.

In another modification of one embodiment, the service provider unit 108 may be programmed to call the callee 104 from the MT more than once if the phone of the callee 104 is not available to take a call when first contacted by the service provider unit 108. Thus the service provider unit 108 may call the callee 104 until the callee's 104 phone actually rings and a MCM delivered to him. A confirmation of the delivery of message may also be provided to the caller 102 also as a MCM.

In another embodiment shown in FIG. 5, a caller 502 may be provided an on-line account with the service provider unit 508. Thus, the caller 502 may use the on-line account to select the MTs and callees 504 to send MCMs. The caller 502 may also program via the on-line account for timed and/or event driven MCM, such that at certain times and/or occurrence of events programmed by the caller 502, MCM is sent to one or more callees 504 via the MTs.

The steps taken can be described as follows: The caller 502 logs into the on-line account and selects the callee numbers and the MTs, the callees 504 are to be called from. The caller 502 may also program the service provider unit 508 via the on-line account to send MCM based on the times and events of the day. The service provider unit 508 calls these callees 504 from the respective MTs and is terminated by the

service provider unit 508 or the callees 504 after the caller ID of the MT is captured by the callee's 504 phone.

In another embodiment shown in FIG. 6, a caller 602 may also be able to trigger the service provider unit 608 to use the MT to perform the MCM to the callees 604 by sending to the service provider unit 608 one or more of SMS, email and IM. Depending on the caller 602 and service provider unit 608 settings and preferences, the service provider unit 608 may use the phone numbers the SMS is sent from/to, the email/IM addresses the email/IM is sent from/to and the content of the SMS/email/IM to identify the caller 602, the callee 604 and the MT the callee 604 is to be called from for MCM. In an alternative embodiment, the caller 602 may also use a Web portal (not shown) associated with the service provider 608 to identify the PNs and MTs through user input via the Web portal.

The steps taken are as follows: The caller 602 registers via one or more of SMS, email and IM. The caller 602 sends a message to the service provider unit 608 via one of SMS, email and IM. The service provider unit 608 uses the addresses the message is sent from/to, its contents and the caller's 602 settings to determine the callee 604 and the MT the callee 604 is to be called from. The service provider unit 608 calls the callee 604 from the MT and the call is terminated by the service provider unit 608 or the callee 604 after the caller ID of the MT is captured by the callee's 604 phone.

In another embodiment shown in FIG. 7, the caller 702 uses the service provider unit 708 to retrieve information about some things of interest to the callees 704 via MCM. The caller 702 may also be listed with the callees 704. For instance, the caller 702 may want to know about the weather forecast for the next two hours and also inform the caller 702 or callees 704. The caller 702 dials a PN that has been preset for weather information. The service provider unit 708 when contacted by the caller 702 via a missed call to the particular PN, the service provider unit 708 retrieves the appropriate information about the weather and processes it as a MCM to the callees 704. For instance, the service provider unit 708 may select one of six MTs, each MT uniquely preset for one of the messages for the weather: "cold", "mild", "hot", "rainy", "snowy", "sunshine", and depending on the prevailing weather, the service provider unit 708 gives a MCM to the callees 704 from the MT preset for the appropriate message. Other categories of information such as traffic conditions, stock market indices, result of sporting events, alerts for events can also be preset and used to provide the callees 704 with information.

FIG. 8 shows an embodiment using access codes based dialing to simplify the MCM steps. It is common for telecom service providers to provide access code based dialing. For instance, a service provider in Singapore may use 1511 as an access code such that a subscriber may call a phone number (usually overseas) say 911122627039 (91 country code for India, 11 city code for Delhi, 22627039 for phone number) by dialing 1511911122627039. If a call is not answered at the other end, no charges are incurred at all. In the present system and method, this access code based dialing can also be used by the caller 802 to compose a number string preceded by the access code (E.g. 1511), the number string containing phone number of the callee 804 and the MT to be used by the service provider unit 808 to call the callee 804. Even information that can identify the caller 802 (for instance the caller ID) may be included in the number. In this example, the caller 802 dials the access code followed by the number string. The service provider unit 808 now gets the number string and the caller ID of the caller 802 without answering the call and then terminating it. The number string is now used by the service provider unit 808 to determine the callee 804 phone number and the MT to use. The service provider unit 808 then calls the callee 804 from the MT for MCM. By inclusion of the caller ID of the caller 802 as part of the number string, the service provider unit 808 can also be used for tracking service provider unit 808 usage, billing and other such purposes. The service provider unit 808 in this embodiment may also be used to provide messages and/or information to one or more callees 804 where the caller 802 may also be one of the callers. In a manner similar to access code based MCM, a modification of the embodiment can also be made to provide for call-back based MCM in places where call-back is preferred.

FIG. 9 shows another embodiment whereby the selection of callees 904 and MTs are separately identified by a two step process of missed calls made to the service provider unit 908. So far, a method has been described where the caller 902 calls the PN at the service provider unit 908 once and the service provider unit 908 calls the callee 904 once from the MT. In the two step MCM process, the service provider unit 908 may allow for the caller to give the service provider unit 908 a missed call first to select the callee 904 which the MCM is intended, and then another missed call to select the MT to convey the MCM.

The first step taken to select the callee 904 is described as follows: The caller 902 dials out one of the PNs used to select the callee 904. If PN1, PN2, ..., PNA are the PNs used by the service provider unit 908 to select the callees 904, then the caller 902

needs to register his callees for these PNs. Optionally the caller 902 dials out a PN designated as a marker for beginning and end of MCM. The marking of beginning and end of MCM can be substituted by other means as long as it serves its intended purpose to delimit the identification process.

Table 1000 describing the relationship between the callers 1002, the PNs 1003, and the callees having caller IDs denoted as U(I,J) 1004 is shown in FIG. 10. Referring also back to FIG. 9, depending on the caller ID of the caller 902 and the PN called, the service provider unit 908 performs a table lookup to determine the callee 904.

The second step taken to select the MT to contact the callee 904 from is as follows: The caller 902 dials out one of the PNs used by the service provider unit 908 to identify the MT. If P1, P2, ..., PA are the PNs used by the service provider unit 908 to select the MTs, then the caller 902 needs to register his MTs for these PNs. Optionally the caller 902 dials out a PN designated as a marker for beginning and end of MCM. The marking of beginning and end of MCM can be substituted by other means as long as it serves its intended purpose to delimit the identification process.

Table 1100 describing the relationship between the callers 1102, the PNs 1103, and the MTs 1105 is shown in FIG. 11. Referring also back to FIG. 9, depending on the caller ID of the caller 902 and the PN called, the service provider unit 908 searches the database to determine the MT to be used to call the callee 904. Having determined the callee 904 and the MT to be used to contact the callee 904, the service provider unit 908 now performs MCM to the callee 904.

In a similar way, the process from the service provider unit 908 to the callee 904 can also consist of steps to identify the caller 902 to the callee 904 via the first MT used and further steps to identify the message via the second MT used.

An advantage of the above method is that it may be more efficient in its utilization of system resources in terms of PNs and MTs used to provide the MCM service. Software programs residing on the phone may be used to perform the one or multi-step MCM in a user-friendly manner. Such programming is understood by one skilled in the art.

In the embodiment shown in FIG. 12, the system allows Group Missed Call Messaging (GMCM) to a select group of callees 1204 simultaneously. This is possible when multiple callees 1204, multiple MTs or both are registered under each PN by one caller 1202. service provider unit 1208

Table 1300 describes the relationship between the callers 1302, the PNs 1303, the MTs 1305, and the callees having caller IDs denoted as $U(I,J)$ 1304 as shown in FIG. 13. Referring also back to FIG. 12, for example, if the caller 1302 wishes to give a missed call to

- callees $U1(I,J)$ from $MT1(I,J)$,
- callees $U2(I,J)$ from $MT2(I,J)$,
- ...,
- callees $UL(I,J)$ from $MTL(I,J)$,

then, when the caller 1302 calls the service provider unit 1208, the caller 1302 registers the pairs $[U1(I,J), MT1(I,J)]$, $[U2(I,J), MT2(I,J)]$, ..., $[UL(I,J), MTL(I,J)]$.

The steps taken by the caller 1202 are as follows: The caller 1202 registers the group of callees 1204 and the MTs under the PNs. The caller 1202 also stores the PNs under suitable entries in the caller's 1202 phonebook for ease of use. The caller 1202 also informs the callees 1204 of the registration and advises the callees 1204 to make suitable entries in the callees' 1204 phonebook. When the caller 1202 wishes to convey a message to a particular group of callees 1204 via the service provider unit 1208, the caller 1202 selects the suitable entry from the caller's 1202 phonebook and makes a call. Either the service provider unit 1208 or the caller 1202 terminates the call after the caller ID of the caller 1202 is captured by the service provider unit 1208.

The steps taken by the service provider unit 1208 are as follows: Allow the callers 1202 to register for the PNs and the MTs. When the caller 1202 calls one of the PNs of the service provider unit 1208, the service provider unit 1208 captures the caller ID of caller 1202 and terminates the call. Based on the caller ID of the caller 1202 and the PN called by the caller 1202, the service provider unit 1208 searches the database to determine the group of callees 1204 and the MTs to be used to call each of the callees 1204 in that group. The service provider unit 1208 calls the callees 1204 from the respective MTs and terminates the call after the caller IDs of the MTs are captured by the callees 1204.

The steps taken by the callees 1204 are as follows: The callees 1204 are informed of the registration by the caller 1202 and advised to make suitable entries in the callees 1204 phonebook. Each of the callees 1204 receives a call from one of the MTs of the service provider unit 1208. Either the service provider unit 1208 or the callees 1202 terminate the calls after the caller ID of the MT is captured by the callees' 1204 phone. The callees 1204 phone matches the caller ID of the MT with the

phonebook and displays the suitable entry containing the caller's 1202 identity and the intended message.

In a modification of this example, it will be appreciated that each callee 1204 may be registered with a plurality of MTs for sending multiple messages to the same callee from different MTs.

In general, all the embodiments mentioned above can be further modified without departing from the spirit or scope of the invention. For example, to cut down setup times and registration calls, certain PNs and MTs may be reserved for very popular messages such as "I love U" and so on. This is particularly useful for the two step MCM process described above with reference to FIGs. 9 to 11. It is also possible for the system to use short codes for MTs and/or PNs instead of regular phone numbers for the callers to call or for callees to be called from for MCM.

Furthermore, in addition to registering a phone number for a callee, a caller may also register one or more of callee's mobile number (for SMS), email address, and IM address for the delivery of the message via the system. In such a modification, the caller may again contact the system via a missed call to one of the PNs (or the other ways described above) to initiate messaging to the callee by the sending of one or more of SMS, email, and IM to the callee, as an alternative, or in addition to messaging the callee via a missed calls as described above. The MT used to send the SMS from, and the addresses used to send the email/IM from, can be programmed by the caller in advance or certain default values may be used.

FIG. 14 shows a schematic drawing of a service provider unit 1400 for sending a message to a callee according to an example embodiment. The service provider unit comprises a hardware or software implemented module 1402 for receiving a communication 1404 from a caller via a communication device (not shown). The service provider unit 1400 further comprises a hardware or software implemented module 1406 coupled to the module 1402 means for identifying the callee and one or more pre-determined caller IDs chosen as representing one or more intended messages for the callee based on the communication 1404 from the communication device. The service provider unit 1400 further comprises a hardware or software implemented module 1408 coupled to the module 1406 for making one or more missed calls 1410 to a phone device (not shown) of the callee using the one or more pre-determined caller IDs.

The service provider unit also comprises a database 1412 for storing one or more lookup tables. The service provider unit 1400 identifies the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on interrogating of said one or more lookup tables.

The method and system of the service provider unit in the example embodiments can be implemented on a computer system 1500, schematically shown in FIG. 15. It may be implemented as software, such as a computer program being executed within the computer system 1500 and instructing the computer system 1500 to conduct the method of the example embodiment.

The computer system 1500 comprises a computer module 1502, input modules such as a keyboard 1504 and mouse 1506 and a plurality of output devices such as a display 1508 and printer 1510.

The computer module 1502 is connected to a computer network 1512 via a suitable transceiver device 1515, to enable access to e.g. the Internet or other network systems such as Local Area Network (LAN) or Wide Area Network (WAN).

The computer module 1502 in the example includes a processor 1518, a Random Access Memory (RAM) 1520 and a Read Only Memory (ROM) 1522. The computer module 1502 also includes a number of Input/Output (I/O) interfaces, for example I/O interface 1524 to the display 1508 and I/O interface 1526 to the keyboard 1504.

The components of the computer module 1502 typically communicate via an interconnected bus 1528 and in a manner known to the person skilled in the relevant art.

The application program is typically supplied to the user of the computer system 1500 encoded on a data storage medium such as a CD-ROM or flash memory carrier and read utilising a corresponding data storage medium drive of a data storage device 1530. The application program is read and controlled in its execution by the processor 1518. Intermediate storage of program data maybe accomplished using RAM 1520.

The method and system of the communication devices of the caller and callee in the example embodiments can be implemented on a wireless device 1600, schematically shown in FIG. 16. It may be implemented as software, such as a

computer program being executed within the wireless device 1600, and instructing the wireless device 1600 to conduct the method of the example embodiment.

The wireless device 1600 comprises a processor module 1602, an input module such as a keypad 1604 and an output module such as a display 1606.

The processor module 1602 is connected to a wireless network 1608 via a suitable transceiver device 1610, to enable wireless communication and/or access to e.g. the Internet or other network systems such as Local Area Network (LAN), Wireless Personal Area Network (WPAN) or Wide Area Network (WAN).

The processor module 1602 in the example includes a processor 1612, a Random Access Memory (RAM) 1614 and a Read Only Memory (ROM) 1616. The processor module 1602 also includes a number of Input/Output (I/O) interfaces, for example I/O interface 1618 to the display 1606, and I/O interface 1620 to the keypad 1604.

The components of the processor module 1602 typically communicate via an interconnected bus 1622 and in a manner known to the person skilled in the relevant art.

The application program is typically supplied to the user of the wireless device 1600 encoded on a data storage medium such as a flash memory module or memory card/stick and read utilising a corresponding memory reader-writer of a data storage device 1624. The application program is read and controlled in its execution by the processor 1612. Intermediate storage of program data may be accomplished using RAM 1614.

It will be appreciated by a person skilled in the art that numerous variations and/or modifications may be made to the present invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects to be illustrative and not restrictive.

CLAIMS

1. A system for sending a message to a callee; the system comprising:
a service provider unit;
a communication device for enabling a caller to communicate with the service provider unit; and
the service provider unit receiving a communication from the caller via the communication device, and identifying the callee and one or more pre-determined caller IDs chosen as representing one or more intended messages for the callee based on the communication from the communication device; and
the service provider unit making one or more missed calls to a phone device of the callee using the one or more pre-determined caller IDs.
2. The system as claimed in claim 1, wherein the phone device identifying the one or more caller IDs of the missed calls and displaying the respective intended messages, wherein message contents are retrieved from phone book entries stored in the phone for the identified caller ID.
3. The system as claimed in claims 1 or 2, wherein the communication device comprises one or more of a group consisting of another phone device, an email device, an SMS device, an IM messaging device and a Web portal associated with the service provider unit.
4. The system as claimed in claim 3, wherein the phone device communicates with the service provider unit via a missed call to a pre-determined phone number associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller ID chosen as representing the one or more respective intended messages based on a caller ID of the phone device and the pre-determined phone number.
5. The system as claimed in claim 3, wherein the email device communicates with the service provider unit via an email message to a pre-determined email address associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages based on email

addresses said email message is sent to/from, content of said email message, or both.

6. The system as claimed in claim 3, wherein the SMS device communicates with the service provider unit via an SMS message to a pre-determined phone number associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages based on a caller ID of the phone device and the pre-determined phone number.

7. The system as claimed in claim 3, wherein the IM messaging device communicates with the service provider unit via an IM message to a pre-determined IM address associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages based on IM addresses said IM message is sent to/from, content of said IM message, or both.

8. The system as claimed in claim 3, wherein the caller communicates with the service provider unit through user input via the Web portal associated with the service provider unit, and the service provider unit determines the callee and the one or more pre-determined caller IDs chosen as representing the one or more respective intended messages based on said user input.

9. The system as claimed in any one of the preceding claims, wherein the service provider unit comprises a database for storing one or more lookup tables, and the service provider unit identifies the callee and the one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on interrogating said one or more lookup tables.

10. The system as claimed in any one of the preceding claims, wherein the service provider unit receives the communication from the caller via the communication device, and identifies a plurality of callees and one or more pre-determined caller IDs chosen as representing one or more intended messages for the respective callees based on the communication from the communication device;

and the service provider unit makes missed calls to a plurality of phone devices of the respective callees using the one or more pre-determined caller IDs chosen as representing the one or more respective intended messages.

11. The system as claimed in any one of the preceding claims, wherein the service provider unit receives first and second communications from the caller via the communication device, and identifies the callee based on one of the first and second communication and the pre-determined caller ID chosen as representing the intended message for the callee from the other communication.

12. The system as claimed in any one of the preceding claims, wherein one of the callees identified is the same as the caller, and the service provider unit identifies the pre-determined caller ID chosen as representing the intended message based on the communication from the communication device, wherein said intended message comprises information requested by the caller, and the service provider unit obtains the requested information from a source and makes a missed call to a phone device of the caller using one or more pre-determined caller IDs chosen as representing the requested information.

13. The system as claimed in any one of the preceding claims, wherein the communication to the service provider unit, the making of the missed call, or both, comprise using access code based dialing.

14. The system as claimed in any one of the preceding claims, wherein the service provider unit is a distributed system comprising a two or more service provider elements disposed in separate communication networks, such that one service provider network is local to the communication device used by the caller, and another service provider element is local to the phone device of the callee.

15. The system as claimed in any one of the preceding claims, wherein the service provider unit comprises a Web portal unit for providing a platform for registration processing for the caller, the callee, or both.

16. The system as claimed in claim 15, wherein the Web portal is arranged for over-the-air download of phone book entries associated with the intended message.

17. The system as claimed in any one of the preceding claims, wherein one or more pre-determined phone numbers and one or more pre-determined caller IDs representing intended messages are reserved for popular messages.

18. The system as claimed in any one of the preceding claims, wherein the system is arranged for making timed or event-driven missed calls to the callee.

19. A method for sending a message to a callee; the method comprising the steps of:

a caller communicating via a communication device with a service provider unit;

receiving, at the service provider unit, a communication from the caller via the communication device, and identifying the callee and one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on the communication from the communication device; and

making one or more missed calls from the service provider unit to a phone device of the callee using one or more pre-determined caller IDs.

20. The method as claimed in claim 19; the method further comprising the phone device identifying the one or more caller IDs of the missed calls and displaying the respective intended messages, wherein message contents are retrieved from a phone book entry stored in the phone for the identified caller ID.

21. A data storage medium having stored thereon computer readable code means for instructing a computer-based communication system to execute a method for sending a message to a callee; the method comprising the steps of:

a caller communicating via a communication device with a service provider unit;

receiving, at the service provider unit, a communication from the caller via the communication device, and identifying the callee and one or more pre-determined

caller IDs chosen as representing the intended messages for the callee based on the communication from the communication device; and

making one or more missed calls from the service provider unit to a phone device of the callee using one or more pre-determined caller IDs.

22. A data storage medium as claimed in claim 21, wherein the method further comprises the phone device identifying the one or more caller IDs of the missed calls and displaying the respective intended messages, wherein message contents are retrieved from a phone book entry stored in the phone for the identified caller ID.

23. A service provider unit for sending a message to a callee; the service provider unit comprising:

means for receiving a communication from a caller via a communication device;

means for identifying the callee and one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on the communication from the communication device; and

means for making one or more missed calls to a phone device of the callee using the one or more pre-determined caller IDs.

24. A method for sending a message to a callee; the method comprising the steps of:

receiving a communication from a caller via a communication device;

identifying the callee and one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on the communication from the communication device; and

making one or more missed calls to a phone device of the callee using the one or more pre-determined caller IDs.

25. A data storage medium having stored thereon computer readable code means for instructing a computer-based service provider unit to execute a method for sending a message to a callee; the method comprising the steps of:

receiving a communication from a caller via a communication device;

identifying the callee and one or more pre-determined caller IDs chosen as representing the one or more intended messages for the callee based on the communication from the communication device; and

making one or more missed calls to a phone device of the callee using the pre-determined caller IDs.