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(54) Title: SYSTEMS AND METHODS FOR INTEGRATING INFORMATION FROM VOICE OVER INTERNET PROTOCOL SYSTEMS AND SOCIAL NETWORKING SYSTEMS

(57) Abstract: Systems and methods of recommending that two people form a link on a social networking system use activities conducted by the two people on a telephony system to determine if the two people are likely acquainted. If it appears that both parties are calling each other, or if both parties are placing or receiving calls from common individuals, a recommendation that they form a link on the social networking system is issued to one or both parties.

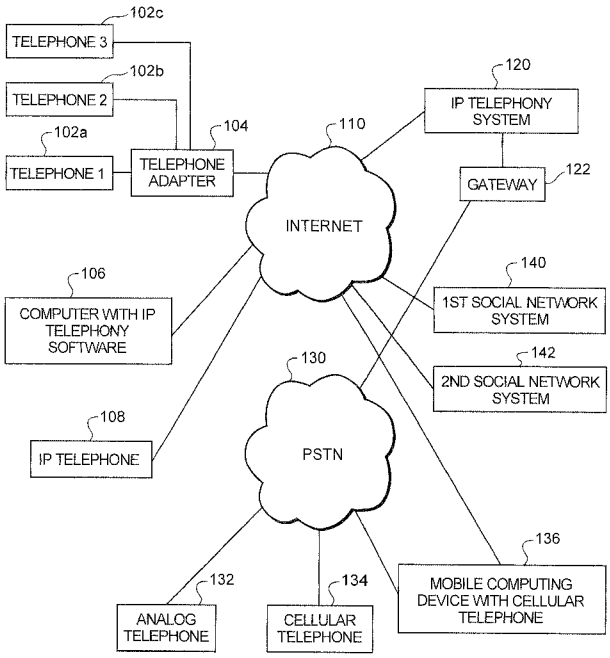

FIGURE 1

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SYSTEMS AND METHODS FOR INTEGRATING INFORMATION FROM VOICE OVER INTERNET PROTOCOL SYSTEMS AND SOCIAL NETWORKING SYSTEMS

This application claims priority to the filing date of U.S. Provisional Patent Application Serial No. 61/406,729, filed October 26, 2010, the contents of which are incorporated herein by reference.

BACKGROUND OF THE TECHNOLOGY

[0001] The technology is related to Internet Protocol (IP) telephony systems which connect telephone calls to or from devices using data packet communications. In a typical IP telephony system, users can place and receive telephone calls using IP based telephones, computers running IP telephony software, or via a normal analog telephone which is connected to the Internet via a telephone adapter.

[0002] Each time that a customer of the IP telephony system places a call or receives a call through the IP telephony system, a call detail record (CDR) is established for the call. The CDR includes various items of information about the call. For instance, the information included in a CDR would typically include the telephone number of the calling party, the telephone number of the called party, the time the call was established, the time the call ended, as well as various other items of information relating to the elements of the IP telephony system that handled the call.

[0003] The technology is also related to social networking systems which allow members to easily interact with one another via the Internet. Typically, each member of a social networking system will establish a presence on the social networking system, which can include posting some basic information. Members then establish links to one another through the social networking system. Once a link is established between first and second members, the first

member can easily see information posted by the second member, and vice versa.

[0004] Presently, there is no way for a social networking system to obtain and utilize the information in CDRs that are recorded by a IP telephony system in order to aid the social networking system in providing services to the members of the social networking system. Specifically, there is no way for a social networking system to utilize the information contained in CDRs to recommend that two unlinked members of a social networking system establish a link between themselves.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIGURE 1 is a diagram of various elements which may be associated with an IP telephony system, a typical public switched telephone network (PSTN) and one or more social networking systems;

[0006] FIGURE 2 is a diagram of various elements of a processor which can be part of an IP telephony system;

[0007] FIGURE 3 is a block diagram illustrating selected elements of an IP telephony system;

[0008] FIGURE 4 is a diagram illustrating how information obtained from call detail records and social networking systems can be correlated;

[0009] FIGURE 5 is a diagram illustrating steps of a first method of determining when to recommend that two people establish a link on a social networking system;

[0010] FIGURE 6 illustrated the structure of an embodiment of an ID cross-reference database;

[0011] FIGURE 7A is a diagram of a second method of determining when to recommend that one person establish a link on a social networking system with a second person;

[0012] FIGURE 7B is a diagram of a third method of determining when to recommend that one person establish a link on a social networking system;

[0013] FIGURE 8 is a diagram illustrating steps of a fourth method of determining when to recommend that two people establish a link on a social networking system;

[0014] FIGURE 9 is a diagram illustrating steps of a fifth method of determining when to recommend that two people establish a link on a social networking system;

[0015] FIGURE 10 is a diagram illustrating steps of a first method of determining when to recommend targeted advertising;

[0016] FIGURE 11 is a diagram illustrating steps of a second method of determining when to recommend targeted advertising;

[0017] FIGURE 12 is a diagram illustrating steps of a sixth method of determining when to recommend that two people establish a link on a social networking system;

[0018] FIGURE 13 is a diagram illustrating steps of a seventh method of determining when to recommend that two people establish a link on a social networking system; and

[0019] FIGURE 14 is a diagram illustrating steps of a eighth method of determining when to recommend that two people establish a link on a social networking system;

[0020] FIGURE 15 is a diagram illustrating steps of a method of adding information to an address book maintained for a customer by an IP telephony system

[0021] FIGURE 16 is a diagram illustrating steps of a first method of determining when to invite a person to join a social networking system; and

[0022] FIGURE 17 is a diagram illustrating steps of a second method of determining when to invite a person to join a social networking system.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0023] Figure 1 illustrates different elements which can be a part of an IP telephony system, a public switched telephone network (PSTN), a cellular telephone network, and one or more social networking systems.

[0024] As shown therein, an IP telephony system 120 enables connection of telephone calls between its own customers and other parties via data communications that pass over a data network. The IP telephony system might also deliver SMS or MMS messages to or from its customers, as well as deliver other forms of communications. As illustrated in Figure 1, the data network is commonly the Internet. The IP telephony system 120 is connected to the Internet 110. In addition, the IP telephony system 120 is connected to a PSTN 130 via a gateway 122.

[0025] The gateway 122 allows users and devices that are connected to the PSTN to connect with users and devices that are reachable through the IP telephony system 120, and vice versa. In some instances, the gateway 122 would be a part of the IP telephony system 120. In other instances, the gateway 122 could be maintained by a third party.

[0026] Customers of the IP telephony system 120 can place and receive telephone calls using an IP telephone 108 that is connected to the Internet 110. Such an IP telephone could be connected to an Internet service provider via a wired connection or via a wireless router. In some instances, the IP telephone 108 could utilize a cellular telephone system to access the Internet.

[0027] Alternatively, a customer could utilize a normal analog telephone 102a which is connected to the Internet 110 via a telephone adapter 104. The telephone adapter converts analog signals from the telephone into data signals that pass over the Internet 110, and vice versa. Also, as illustrated in Figure 1, multiple analog telephone devices 102a, 102b and 102c could all be coupled to the same telephone adaptor 104. Analog telephone devices include but are not limited to standard telephones and document imaging devices such as facsimile

machines. A configuration using a telephone adapter 104 is common where all of the analog telephone devices 102a, 102b and 102c are located in a residence or business, and all of the telephone devices are connected to the same telephone adapter. With this type of a configuration, all of the analog telephone devices 102a, 102b, 102c share the same telephone number assigned to the telephone adaptor 104. Other configurations are also possible where multiple communication lines (e.g., a second telephone number) are provisioned by the IP telephony system.

[0028] In addition, a customer could utilize a soft-phone client running on a computer 106 to place and receive IP based telephone calls, and to access other IP telephony systems. In some instances, the soft-phone client could be assigned its own telephone number. In other instances, the soft-phone client could be associated with a telephone number that is also assigned to an IP telephone 108, or to a telephone adaptor 104 that is connected to one or more analog telephones.

[0029] A third party using an analog telephone 132 which is connected to the PSTN 130 may call a customer of the IP telephony system 120. In this instance, the call is initially connected from the analog telephone 132 to the PSTN 130, and then from the PSTN 130, through the gateway 122 to the IP telephony system 120. The IP telephony system 120 would then route the call to the customer's IP telephony device. A third party using a cellular telephone 134 could also place a call to an IP telephony system customer, and the connection would be established in a similar manner, although the first link would involve communications between the cellular telephone 134 and a cellular telephone network. For purposes of this explanation, the cellular telephone network is considered part of the PSTN 130.

[0030] In addition, mobile computing devices which include cellular telephone capabilities could also be used to place telephone calls to customers of the IP telephony system. A mobile computing device 136 as illustrated in Figure 1 might connect to the PSTN 130 using its cellular telephone capabilities.

However, such devices might also have the ability to connect wirelessly via some other means. For instance, a mobile computing device 136 might communicate with a wireless data router to connect the mobile computing device 136 directly to a data network, such as the Internet 110. In this instance, communications between the mobile computing device 136 and other parties could be entirely carried by data communications which pass from the mobile computing device directly to a data network 110. Of course, alternate embodiments could utilize any other form of wireless communications path to enable communications.

[0031] Users of the IP telephony system 120 are able to access the service from virtually any location where they can connect to the Internet. Thus, a customer could register with an IP telephony system provider in the U.S., and that customer could then use an IP telephone 108 located in a country outside the U.S. to access the services. Likewise, the customer could also utilize a computer outside the U.S. that is running a soft-phone client to access the IP telephony system.

[0032] Additional elements illustrated in Figure 1 are introduced and discussed in greater detail below.

[0033] Figure 2 illustrates elements of a computer processor that can be used as part of the IP telephony system 120 to accomplish various functions. The IP telephony system 120 could include multiple processors 150 located at various locations in the system, along with their operating components and programming, each carrying out a specific or dedicated portion of the functions performed by the VOIP based telephony service 120.

[0034] The processor 150 shown in Figure 2 may be one of any form of a general purpose computer processor used in accessing an IP-based network, such as a corporate intranet, the Internet or the like. The processor 150 comprises a central processing unit (CPU) 152, a memory 154, and support circuits 156 for the CPU 152. The processor 150 also includes provisions 158/160 for connecting the processor 150 to customer equipment and to service provider agent equipment, as well as possibly one or more input/output devices

(not shown) for accessing the processor and/or performing ancillary or administrative functions related thereto. The provisions 158/160 are shown as separate bus structures in Figure 2; however, they may alternately be a single bus structure without degrading or otherwise changing the intended operability of the processor 150.

[0035] The memory 154 is coupled to the CPU 152. The memory 154, or computer-readable medium, may be one or more of readily available memory such as random access memory (RAM), read only memory (ROM), floppy disk, hard disk, flash memory or any other form of digital storage, local or remote, and is preferably of non-volatile nature. The support circuits 156 are coupled to the CPU 152 for supporting the processor in a conventional manner. These circuits include cache, power supplies, clock circuits, input/output circuitry and subsystems, and the like.

[0036] A software routine 162, when executed by the CPU 152, causes the processor 150 to perform processes of the disclosed embodiments, and is generally stored in the memory 154. The software routine 162 may also be stored and/or executed by a second CPU (not shown) that is remotely located from the hardware being controlled by the CPU 152. Also, the software routines could also be stored remotely from the CPU. For example, the software could be resident on servers and memory devices that are located remotely from the CPU, but which are accessible to the CPU via a data network connection.

[0037] The software routine 162, when executed by the CPU 152, transforms the general purpose computer into a specific purpose computer that performs one or more functions of the IP telephony system 120. Although the processes of the disclosed embodiments may be discussed as being implemented as a software routine, some of the method steps that are disclosed therein may be performed in hardware as well as by a processor running software. As such, the embodiments may be implemented in software as executed upon a computer system, in hardware as an application specific integrated circuit or other type of hardware implementation, or a combination of

software and hardware. The software routine 162 of the disclosed embodiments is capable of being executed on any computer operating system, and is capable of being performed using any CPU architecture.

[0038] In the following description, references will be made to an "IP telephony device." This term is used to refer to any type of device which is capable of interacting with an IP telephony system to conduct a telephone call, to send or receive text messages, or to send and receive other forms of communications. An IP telephony device could be an IP telephone, a computer running IP telephony software, an IP telephony adapter which is itself connected to a normal analog telephone, or some other type of device capable of communicating via data packets. An IP telephony device could also be a cellular telephone or a portable computing device that runs a software client that enables the device to act as an IP telephone. Thus, a single device might be capable of operating as both a cellular telephone and an IP telephone.

[0039] Moreover, certain devices that are not traditionally used as IP telephony devices may act as IP telephony devices once they are configured with appropriate client software. Thus, some devices that would not normally be considered IP telephony devices may become IP once they are running appropriate software.

[0040] Figure 1 also illustrates a first social networking system 140 and a second social networking system 142. Both social networking systems are connected to the Internet. As explained above, members of a social networking system are able to access the social networking system via the Internet. In some instances, access would be obtained using a computer. In other instances, a member might obtain access to the social networking system using a cellular telephone or a mobile computing device.

[0041] Members of a social networking system are able to post information, text, Internet links, and possibly photos, videos and other forms of media to the social networking system. Members of a social networking system are also able to selectively establish links between each other. Once a link has

been established between first and second members, information posted by the first member can be accessed and viewed by the second member, and vice versa.

[0042] Some social networking systems also allow users to record their own contact information, and to make this information available to other members to whom they are linked. In fact, some social networking systems have as their primary purpose, a way for two people to easily exchange their respective contact information. In such systems, a first member could be linked to a large number of other members. If the first member needs to update an item of his own contact information due to a residential move, a professional move, or because of a change in a telephone number or e-mail address, the first member need only update his contact information posted on the social networking system. Once that change has been made, the changed information will become immediately available to the other members linked to the first member. Thus, the social networking system provides a simple and expedient way to make one's current contact information available to many other people.

[0043] Often, two people who are both members of a social networking system, and who are personally acquainted or may otherwise have common contacts, are not linked to one another simply because each person is unaware that the other person is also a member of the social networking system. In some instances, a first member of a social networking system might be aware that one of his friends is also a member of the same social networking system, but the first member may not be able to find the friend using a name or e-mail address for purposes of establishing a link. Systems and methods of determining whether to recommend that two people link to one another on a social networking system will now be described with reference to Figures 3-5.

[0044] Figure 3 is a block diagram that presents some of the elements of an IP telephony system which is capable of determining when to recommend that two members of a social networking system establish a link on the social networking system.

[0045] The IP telephony system 120 includes a database 310 that includes information about calls, text messages and other forms of communications that have been placed through or completed through the IP telephony system. A CDR Analysis Unit 370 is coupled to the CDR database 310. The CDR Analysis Unit 370 is capable of analyzing the CDR data in various ways, as will be explained in more detail below. The CDR Analysis Unit 370 may also be linked to various other assets both inside and outside the IP telephony system. For example, the CDR Analysis Unit 370 may be linked to various databases of telephone numbers, various databases of businesses, and/or reverse telephone number databases that correlate telephone numbers to particular individuals or businesses.

[0046] The IP telephony system 120 also includes a voicemail recording storage unit 320. The voicemail recordings could be recordings of voicemail messages left for customers or users of the IP telephony system. In other instances, the voicemail recordings could be recordings that customers or users of the IP telephony system have left for people who obtain telephony services from some other service provider.

[0047] The IP telephony system 120 further includes a telephone call recording storage unit 330 that contains recordings of telephone calls placed over the IP telephony system. This could include recordings of outgoing telephone calls placed by customers of the IP telephony system, and recordings of incoming telephone calls placed to customers of the telephony system by non-customers.

[0048] A transcription unit 335 is coupled to the voicemail recording storage unit 320 and the telephone call recording storage unit 330. The transcription unit 335 utilizes speech recognition assets to generate transcriptions of the recorded voicemail messages and telephone calls.

[0049] The transcription unit 335 is coupled to a content analysis unit 360. The content analysis unit 360 may also be coupled to a text message storage unit 340 and an e-mail storage unit 350. The text messages stored in the text

message storage unit 340 and the e-mails stored in the e-mail storage unit 350 could include both text messages and e-mails generated by the customers of the IP telephony system, as well as incoming text messages and e-mails that were generated by non-customers and that were sent to the customers of the IP telephony system. The content analysis unit 360 would analyze the content of the voicemail recordings, the telephone conversations, the text messages and the e-mails in various different ways as is explained in more detail below.

[0050] A social networking system interface 375 is used to access the information available to a customer on a social networking system. The capabilities and functions of the social networking system interface 375 are described in more detail below.

[0051] The IP telephony system 120 also includes an identifier cross-reference database 385. As described in more detail below, the identifier cross-reference database 385 cross-references different types of information used to identify individuals and businesses. For example, the identifier cross-reference database 385 could tie a telephone number for an individual to the e-mail address and instant messaging identifier for that individual. The identifier cross-reference database 385 can be loaded with information obtained from many different sources over an extended period of time, as explained in more detail below.

[0052] A Link Recommendation Unit 380 is coupled to the CDR Analysis Unit 370, the Content Analysis Unit 360, the social networking system interface 375 and the identifier cross-reference database 385. In addition, the Link Recommendation Unit 380 may also receive information from other assets both inside the IP telephony system 120 and outside the IP telephony system 120. For example, the Link Recommendation Unit 380 may interfacing with and obtain information from a social networking system, as is described in more detail below. Based on the information it obtains and analyses, the Link Recommendation Unit 380 generates recommendations that one member of a social networking system form a link with another member of the social

networking system. Such recommendations could be sent to one of the two members, or to both of the members.

[0053] An Advertising Recommendation Unit 390 is also coupled to the CDR Analysis Unit 370 and the Content Analysis Unit 360. In addition, the Advertising Recommendation Unit 390 may receive information from other assets both inside the IP telephony system 120 and outside the IP telephony system 120. For example, the Advertising Recommendation Unit 390 may interface with and obtain information from various databases of telephone numbers, businesses and/or from reverse telephone number databases that correlate businesses to telephone numbers, as is described in more detail below. Based on the information it obtains and analyses, the Advertising Recommendation Unit 390 generates recommendations about whether, when and possibly how to send advertisements to individuals.

[0054] An Advertising Transmission Unit 395 is used to deliver advertising messages. The Advertising Transmission Unit 395 may receive instructions regarding the delivery of advertising messages from the Advertising Recommendation Unit 390. The Advertising Transmission Unit 395 delivers advertising messages to individuals in any of multiple different ways, as is discussed in more detail below.

[0055] Figure 4 illustrates CDR data for two customers of an IP telephony system 120. Customer 1 has a telephone number of 617-551-6789. Customer 2 has a telephone number of 312-991-4321. As explained above, each time that a customer of an IP telephony system places a call to another party, or receives a call from another party, information about the call is recorded in call detail records. Similarly, when a customer sends or receives a text message or some other form of communication, information about the communication is recorded. This can include the telephone number from which an incoming communication was received, or the telephone number to which an outgoing communication was sent.

[0056] Although Figure 4 illustrates telephone numbers associated with incoming and outgoing communications, in some instances a communication received by a customer or sent by a customer of an IP telephony system may not be associated with a telephone number. Instead, some other identifier may be used to identify the party that sent an incoming communication to a customer or to whom a customer has sent an outgoing communication. Thus, the illustration of telephone numbers in Figure 4 should in no way be considered limiting. The methods and systems described herein could utilize other types of identifiers to route communications to and from customers of the IP telephony system.

[0057] Figure 4 shows the telephone numbers to which customer 1 has sent outgoing communications 404 and the telephone numbers associated with incoming communications 402 received by customer 1 over a certain period of time. This same type of information is also shown for customer 2 in call lists 408 and 406, respectively. Although only a few telephone numbers are illustrated in Figure 4, one of skill in the art would appreciate that a much larger number of calls might be placed by some individuals over a given period of time.

[0058] Figure 4 also illustrates that customer 1 and customer 2 are both members of a social networking system. Some of the contact information of people to whom they are linked through the social networking system is also shown for each of customer 1 and customer 2 in contact lists 410 and 412. One of skill in the art would also appreciate that each customer may be linked to a much larger number of other members. The three contacts/links shown for each of customer 1 and customer 2 are only for illustrative purposes.

[0059] It is possible for the customers of an IP telephony system 120 to provide the IP telephony system with credentials that allow the IP telephony system 120 to access the information available to the customer on a social networking system. Once the IP telephony system has a customer's credentials, the IP telephony system can access the same information stored on the social networking system that would be directly available to the customer. Thus, an IP

telephony system 120 could access the contact information available to the customer.

[0060] The social networking system interface 375 of the IP telephony system 120 uses a customer's credentials to access various social networking systems for purposes of accessing the information available to the customer on the social networking system. The customer's credentials might be stored in the social networking system interface 375, or at other locations.

[0061] Once the social networking system interface 375 has accessed a social networking system using a customer's credentials, the social networking system interface 375 is able to review the customer's contact or link information. Such information can provide the names, e-mail addresses, telephone numbers and other items of data that can be used to uniquely identify an individual or a business.

[0062] Because the IP telephony system also has access to the information stored on CDRs for its customers, it is possible for the IP telephony system to use both pieces of information together to determine if it makes sense to recommend that one of its customers establish a link to another party on the social networking system. A method of doing so is illustrated in FIGURE 5.

[0063] In step S502, the IP telephony system first examines customer 1's CDRs to determine the telephone numbers or identifiers to which customer 1 has sent communications, and from which customer 1 has received communications. This might include reviewing CDRs for customer 1 that have accumulated over a week, a month, or for longer periods of time.

[0064] In step S504, the social networking system interface 375 of the IP telephony system 120 uses previously obtained credentials from customer 2 to access customer 2's contact information within a social networking system. Typically, the contact information is for the members of the social networking system to whom customer 2 is linked on the social networking system. The IP telephony system 120 compares the telephone numbers or other identifiers obtained from customer 1's CDRs in lists 402 and 404 to the telephone numbers

or other identifiers that are part of customer 2's contact information 412 on the social networking system.

[0065] If there is a match, that means customer 1 is communicating with someone to whom customer 2 is linked on the social networking system. In the data illustrated in FIGURE 3, one can see that the CDR data for customer 1 indicates that customer 1 sent a communication to telephone number 312-333-1234, which is the telephone number for Sue Johnson, one of the people to whom customer 2 is linked on the social networking system. Likewise, customer 1 has also sent a communication to telephone number 808-215-5555, which is the telephone number for Kate Jackson, another of the people to whom customer 2 is linked on the social networking system.

[0066] Given those connections, in step S506 the system would issue a recommendation that customer 1 establish a link on the social networking system to customer 2, and/or vice versa. The recommendation to create a link on the social networking system could be delivered to one or both of the customers via the IP telephony system 120 or via the social networking system.

[0067] The fact that the IP telephony system is able to access both its customers' CDR data, as well as its customers' contact or link information on a social networking system makes it possible for the IP telephony system to identify connections between members of the social networking system that could not be identified by the information present only within the social networking system alone. Increasing the number of links between its members is one way for a social networking system to increase its utility to its members. Thus, recommending links in this fashion should be desirable to both the customers, and to the operators of the social networking system.

[0068] In the method described above, telephone numbers and/or other identifiers from one customer's CDR data are compared to the contact information stored for a second customer on a single social networking system. One of skill in the art will appreciate that the telephone numbers and/or identifiers obtained from customer 1's CDR data could be compared to the contact

information for a large number of members of the social networking system. Likewise, one of skill in the art will appreciate that the telephone numbers and/or identifiers obtained from customer 1's CDRs could also be compared to the contact data for a large number of members of other social networking systems.

[0069] Information about customer 2's contacts that were obtained when the social networking system interface 375 accessed the social networking system with customer 2's credentials can be stored in the identifier cross-reference database 385 of the IP telephony system 120. An illustration of an embodiment of a data structure of such an identifier cross-reference database 385 is provided in Figure 6.

[0070] As shown in Figure 6, the IP telephony system 120 can assign a unique identifier to each individual or business that is entered into the database. Each unique identifier is then matched to other identifiers for individuals or businesses, such as a name, various telephone numbers, e-mail addresses, instant messaging identifiers, addresses information, and other identifiers.

[0071] The identifier cross-reference database 385 can be built up over time as the IP telephony system acquires information from a variety of different sources. For example, the IP telephony system 120 could begin creating an identifier cross-reference database 385 with the information it possess for its own customers. The IP telephony system could access contact lists or address books that it maintains for its own customers, and this information could be used to begin building the identifier cross-reference database 385. Each time a new individual or business is identified, a new entry for that individual or business would be created in the identifier cross-reference database 385. As much information as possible will then be entered into the identifier cross-reference database 385 from the information available in the customers' contact lists and address books.

[0072] If the social networking system interface 375 of the IP telephony system 120 obtains credentials from a first social networking system for one of its customers, the social networking system interface 375 will access the customer's

contact/link information available on the first social networking system. If the social networking system interface 375 discovers a listing for a new individual or business in the customer's contact/link lists on the social networking system that is not already present in the identifier cross-reference database 385, a new listing for that individual or business will be created in the identifier cross-reference database 385, and all available information will be copied into the identifier cross-reference database 385. If one of the entries in the customer's contact/link list on the social networking system corresponds to a pre-existing entry in the identifier cross-reference database 385, the social networking system interface 375 may be able to add new items of identifier information to the ID cross-reference database 385 for that pre-existing entry. For example, if a first social networking system has assigned its own unique identifier to an individual, that information could be added to the ID cross-reference database 385.

[0073] If the social networking system interface 375 of the IP telephony system 120 obtains the credentials for the same customer on a second social networking system, the social networking system interface 375 will access the customer's contact/link information available on second social networking system and try to add yet additional information to the identifier cross-reference database.

[0074] In some instances, identifier information obtained for an individual/business from the contact/link information available on a first social networking system may prove valuable in obtaining additional identifier information for that individual/business from a second social networking system. For example, assume that before any reviews of social networking system data are performed, an individual's listing in the identifier cross-reference database 385 only includes the individual's name and a mobile telephone number. Assume that during a review of a customer's contact/link information on a first social networking system, the IP telephony system 120 is able to identify the individual's entry on the contact/link list in the first social networking system based on the mobile telephone number present in the identifer cross-reference

database 385. Assume also that the contact/link information on the first social networking system includes the individual's e-mail address. This would allow the IP telephony system to add the individual's e-mail address to the ID cross-reference database 385.

[0075] Assume further that the same individual is listed in the customer's contact/link information on a second social networking system. But the contact/link entry in the second social networking system includes only an e-mail address and an instant messaging identifier.

[0076] If the IP telephony system uses the customer's credentials to access and review the customer's contact/link information on the second social networking system, the newly added e-mail address in the identifier cross-reference table 385 can be used to identify the individual's entry in the contact/link list on the second social networking system. And once the individual's entry has been identified, the IP telephony system 120 will be able to further add the individual's instant messaging identifier to the identifier cross-reference database 385.

[0077] If the individual's e-mail address had not first been obtained from a review of the contact/link information on the first social networking system, the IP telephony system 120 would not have been able to identify the individual's entry in the second social networking system. And this would have prevented the IP telephony system 120 from obtaining the individual instant messaging identifier and adding the instant messaging identifier to the identifier cross-reference database 385. Thus, maintaining the identifier cross-reference database 385, and updating the information stored in the identifier cross-reference database 385 each time that new information becomes available helps the IP telephony system to create a comprehensive listing of all identifiers that can be used identify an individual or a business. And correctly identifying an individual/business allows the IP telephony system to recommend links within a social networking system, as well as recommend the delivery of advertising messages, as discussed below.

[0078] Steps of another method of determining when to recommend a link on a social networking system with a customer of an IP telephony system is illustrated in Figure 7A. As shown therein, in step S702, the CDRs that are created for a first customer within an IP telephony system are analyzed to determine the telephone numbers or identifiers that the first customer sends communications to and/or receives communications from. Next, the names of individuals and/or businesses associated with those telephone numbers and identifiers are determined in step S704. This could be accomplished by using internal or external databases that correlate telephone numbers or other identifiers to individuals and/or businesses.

[0079] In step S706, the names of those individuals/businesses, and possibly also their associated telephone numbers or other identifiers, are used to determine if the individuals/businesses are members of the same social networking system as the first customer. If so, the IP telephony system issues a recommendation for a link. This could include recommending that the first customer establish a link to another person or business who is a member of the social networking system, or recommending that an individual or business establish a link to the first customer. Of course, this could also include issuing recommendations for forming a link to both parties.

[0080] A method similar to the one discussed above could also be performed using transcriptions of recordings of telephone conversations or voicemail messages for the first customer. In this alternate method, names and telephone numbers would be extracted from transcriptions of telephone conversations, voicemail recordings and possibly also text messages and e-mail messages. Those names and telephone numbers would then be used to determine if any of the individuals with whom the first customer has been communicating are members of the same social networking system as the first customer. If so, a recommendation to form a link is sent to the first customer and/or to the other identified individual

[0081] Figure 7B illustrates another method of determining when to recommend a link on a social networking system. As shown therein, in step S710, an address book maintained for a first customer is examined to obtain names, telephone numbers and other identifiers for the people and businesses listed in the first customer's address book. If an entry in the customer's address book contains a telephone number or another identifier, but not a name, internal or external databases that correlate telephone numbers or identifiers to individuals and businesses could be used to obtain names associated with the telephone numbers and identifiers.

[0082] In step S712, the names of those individuals and businesses, and possibly also their associated telephone numbers or identifiers, are used to determine if the individuals/businesses are members of the same social networking system as the first customer. If so, then in step S714 a recommendation to form a link on the social networking system is issued to the first customer and/or to the identified individual/business.

[0083] Another method of determining when to recommend a link on a social networking system is illustrated in Figure 8. As shown therein, in step S802, the IP telephony system 120 examines a first customer's CDRs to determine the telephone numbers or identifiers to which the first customer has sent communications, and from which the first customer has received communications. In step S804, the IP telephony system 120 does the same thing for a second customer. In step S806, if there is a match between the telephone numbers or identifiers acquired from the first customer's CDRs and the telephone numbers or identifiers acquired from the second customer's CDRs, then the IP telephony system recommends a link on the social networking system. This could include sending a link recommendation to one or both of the first and second customers.

[0084] Examples of data patterns which would lead to such link recommendations are illustrated in Figure 4, which shows that both customer 1 and customer 2 have received communications from telephone number 212-555-

1234. Thus, one can assume that customer 1 and customer 2 are both acquainted with the same individual/business. Likewise, Figure 4 shows that customer 1 has received communications from telephone numbers 847-555-1212 and 567-321-2123, which are the same telephone numbers to which customer 2 has sent communications. If any of these matches were noted in step S606, the system would recommend that customer 1 and customer 2 establish a link on a social networking system where they are both members. Here again, because the social networking system itself does not have access to the CDR data stored on the IP telephony system, there would be no way for the social networking system to use similar information to make the recommendation for a link between two of its members.

[0085] Figure 9 illustrates another method of determining when to recommend that two people establish a link on a social networking system. In this method, in step S902, the IP telephony system 120 utilizes previously obtained credentials to access and review the contact or link information for a first customer that is stored on a social networking system. The IP telephony system identifies the telephone numbers, names and other identifiers associated with the individuals and businesses in the first customer's contact/links information.

[0086] In step S904, the IP telephony system 120 does the same thing for a second one of its customers. In step S906, the IP telephony system compares the obtained telephone numbers, names and other identifiers, to determine if there are any matches. If so, the IP telephony system recommends that a link be established on the social networking system between the first and second customers. Such a link recommendation could be sent to one or both of the customers.

[0087] Examples of data patterns which would lead to such link recommendations are also shown in Figure 4, which illustrates that customer 1's contact or link information on the social networking system includes John Smith, who has a telephone number of 847-555-1212. Customer 2's contact or link

information on the social networking system lists the same person. And if both customer 1 and customer 2 have linked to the same person, the IP telephony system recommends that customer 1 and customer 2 establish a link on the social networking system. In some embodiments, the recommendation to form a link between two members of a social networking system might only be issued if the first and second customers have a minimum number of contacts or links in common.

[0088] Figure 10 illustrates steps of a method of using information obtained from customer CDRs to recommend or sell targeted advertisements to businesses. This method begins in step S1002, when the IP telephony system would review a customer's CDRs to note communications patterns. This step could take a number of different forms. A few examples are discussed below. However, the method would apply to virtually any type of analysis that renders useful data.

[0089] For example, the analysis could reveal that a customer calls a certain telephone number on a regular basis. The IP telephony system then consults one or more reverse telephone number databases to determine if the telephone number is for a business. If so, the IP telephony system determines the type of business. Once that pattern has been noted, in step S1004 the IP telephony system recommends to other competing businesses that an advertisement be sent to the customer.

[0090] In some instances, the databases consulted to identify the business connected with a telephone number called by the customer could be created and maintained by the IP telephony system itself. In other instances, the IP telephony system might consult databases maintained by a third party. Also, the IP telephony system might build its own databases over time by adding information to its own databases each time information is drawn from a third party database.

[0091] One example would be to note that a customer frequently places calls to a certain pizza business. Once the IP telephony system knows that the

customer regularly orders pizza, the IP telephony system, in step S1004, could recommend to other competing pizza shops that an advertisement be sent to the customer. And because the IP telephony system is able to identify an individual who is known to purchase pizza on a regular basis, one would expect the competing pizza shops to pay a premium to obtain the customer's identity, or to have an advertisement delivered to the customer.

[0092] In step S1006, the IP telephony system itself could offer to deliver the advertisement to the customer. The advertisement could be delivered to the customer in the form of a SMS or MMS message, via e-mail, via a voice call from a live operator, by calling the customer and delivering a recorded message, or by calling the customer and connecting the customer to an interactive voice response system. In the case of an interactive voice response system, the customer could be presented with multiple options, with the ability to obtain various different items of information, or with the ability to obtain a discount coupon for the advertized service or product in any one of multiple different ways. In any event, if the IP telephony system itself becomes involved in delivery of the advertisement, it would provide another potential way for the IP telephony system to obtain revenue from the delivery of the advertisement. Also, if the advertisement were delivered in that fashion, it would be possible for the IP telephony system to never reveal the identity of the customer to which the advertisement is sent. And this could ally any fears that use of the customer's CDR data would lead to a breach of client confidentiality.

[0093] The IP telephony system 120 might also be able to obtain information about the customer's movements based on position data reported from GPS enabled telephones. If the customer's movements are also known, this information could be combined with information obtained from an analysis of the CDR data to even better identify those competing businesses who might be interested in sending an advertisement to the customer.

[0094] For example, and continuing with the pizza analogy given above, the analysis of the CDR data might indicate that the customer typically calls a

pizza shop at about 6pm each Friday. An analysis of the customer's movements might also reveal that the customer travels from his office to his residence at about the same time each Friday night by an identifiable path. Given this information, the IP telephony system could then search for competing pizza shops that are along the route traveled by the customer as he travels to his residence. If a competing pizza shop along that route is identified, the IP telephony system could recommend that the competing shop send the customer an advertisement. And this advertisement would be even more highly targeted because it would be from a shop along the customer's normal route home.

[0095] Taking this example one step further, the IP telephony system could offer to deliver an advertisement from the competing pizza shop to the customer, with the advertisement to be delivered to the customer at 5:30 pm on Friday evening, which is just before the customer typically places an order for a pizza. Thus, the timing of the delivery of advertising messages could also be controlled based on an analysis of the customer's CDR data.

[0096] In addition to analyzing CDR data to determine the businesses that a customer calls, the analysis could reveal the locations that are regularly called. For example, an analysis of a customer's CDR data could reveal that the customer regularly places calls to a particular foreign country. In this instance, the IP telephony system might recommend that a travel service that specializes in trips to that country send an advertisement to the customer.

[0097] An analysis of a customer's CDR data might be used by the IP telephony system itself to recommend an alternate calling plan that would result in better or less expensive service for the customer.

[0098] As noted above, the analysis of CDR data can take many forms. However, the analysis would be designed to identify information about the customer, his habits, his spending patterns, and his affiliations. As also noted above, the timing of the customer's communications may provide important clues about the customer's behavior patterns. Further, it may be possible to tie together both information from an analysis of a customer's CDRs, and his

movement patterns. All of this information would be used to target advertisements to the customer.

[0099] Figure 11 illustrates another method of determining when to recommend that certain businesses send advertisements to a customer. This method begins in step S1102 where a customer's telephone conversations and/or voicemail messages are recorded. Next, in step S1104, the recordings are transcribed. In step S1106, the transcriptions are analyzed for information. Here again, the analysis could take many different forms. But the core idea is to extract information about the customer's habits, spending patterns, behavior and affiliations. And based on this information, in step S1108, the IP telephony system recommends to certain businesses that they send advertisements to the customer.

[00100] As in the previous discussion, the method could include step S1110, where the IP telephony system itself delivers an advertizing message to the customer. As explained above, this could be done to protect the privacy of the customer.

[00101] In addition to analyzing transcriptions of voicemail or telephone conversations, the IP telephony system might also analyze the text from text messages, emails or other forms of communications that have been generated by a customer or that were directed to or delivered to a customer. Here again, the IP telephony system would be attempting to extract information about the customer's habits, spending patterns, behavior and affiliations.

[00102] In the methods discussed above, if recordings of voicemail messages and telephone conversations are being analyzed, and if text messages and email messages are being examined, the customer may have to positively provide permission for these actions to eliminate any privacy considerations.

[00103] Figure 12 illustrates another method of determining when to recommend that two VOIP customers establish a link on a social networking system. This method also makes use of transcriptions of recorded conversations

and voicemail messages and/or text messages e-mail messages and other forms of communications.

[00104] In step S1202, customer 1's telephone conversations and voicemail messages are recorded. In step S1204, customer 2's telephone conversations and voicemail messages are recorded. In step S1206, the recordings are transcribed. In step S1208, the transcribed information, and possibly also text messages, e-mail messages and other communications, are examined and analyzed to determine if key information matches.

[00105] For example, in step S1208, the analysis of the transcriptions or text from text messages and e-mail messages may be designed to extract names and telephone numbers that were spoken in telephone conversations and voicemail messages or that appeared in the text or e-mail messages. Such information would frequently be spoken in a voicemail message where a caller is leaving contact information so that the called party can return the call. If the analysis of customer 1's and customer 2's recorded conversations, voicemail messages, text and e-mail messages indicate matching information, then the IP telephony system issues a recommendation that customer 1 and customer 2 establish a link on a social networking system.

[00106] Figure 13 illustrates another method of determining when to recommend that two customers establish a link on a social networking system. In step S1302, the IP telephony system records customer 1's telephone conversations and voicemail messages. In step S1304, the IP telephony system transcribes the recordings. In step S1306, the IP telephony system extracts names, telephone numbers and other identifiers from the transcriptions. Step S1306 may also include extracting names, telephone numbers and other identifying information from text messages and e-mail messages, as described above.

[00107] In step S1308, the IP telephony system uses previously obtained credentials to access customer 2's contact or link information on a social networking system. The IP telephony system then compares the names,

telephone numbers and other identifiers extracted from the transcriptions of the recordings to the names, telephone numbers and other identifiers appearing in customer 2's contact/link information on the social networking system. If there is a match, in step S1310, the IP telephony system recommends that a link be established between customer 1 and customer 2 on the social networking system.

[00108] Another method of determining when to recommend that two individual establish a link on a social networking system is illustrated in Figure 14. As shown therein, in step S1402, a first customer's telephone conversations and voicemails are recorded. In step S1404, the recordings are transcribed. In step S1406, the transcriptions are examined, and names, telephone numbers and other identifiers are extracted from the transcriptions. This step may also include extracting names, telephone numbers and other identifiers from text messages, e-mail messages and other communications generated by or sent to the first customer.

[00109] In step S1408, a second customer's CDRs are analyzed to extract the telephone numbers and other identifiers to which the second customer has sent communications and from which the second customer has received communications. Once a telephone number or other identifier has been obtained, the IP telephony system may also use this information to obtain the name of an individual or business associated with the telephone number and identifier. Identifying the names of individual and businesses could be accomplished using internal or external databases.

[00110] In step 1410, the names, telephone numbers and identifiers extracted from the first customer's communications are compared to the names, telephone numbers and identifiers extracted using the second customer's CDRs. If there are matches, then a recommendation is made to establish a link between the first and second customer.

[00111] In many of the methods discussed above, an IP telephony system recommends that two customers establish a link on a social networking system

based on information drawn from one or more customers' use of the IP telephony system. In a similar fashion, it is possible to update or add information to customer information and databases stored by an IP telephony system based on the customer's use of the social networking system.

[00112] FIGURE 15 illustrates a method of adding information to a customer's address book maintained on an IP telephony system based on that customer's use of or information stored on a social networking system. In step S1502, the IP telephony system would utilize a customer's credentials with a social networking system to access the information stored on the social networking system. Specifically, the IP telephony system would identify some or all of the individuals to which the customer is linked on the social networking system. The IP telephony system might also access contact information that the customer has stored on the social networking system.

[00113] In step S1504, this information would then be compared to the information stored in an address book maintained by the customer with the IP telephony system. If one or more of the individuals to whom the customer is linked on the social networking system are not already present in the customer's address book, new entries would be created in the address book for those people. Also, even if there is already an entry in the customer's address book for one of the individuals to whom the customer is linked on the social networking system, the IP telephony system may be able to obtain additional information about that person which can then be added to the address book maintained by the IP telephony system. Thus, information stored on the social networking system can be used to add or update information stored by the IP telephony system.

[00114] Figure 16 illustrates steps of a method of inviting individuals to join a social networking system and to link to a customer of an IP telephony system on that social networking system. In step S1602, information for a customer of an IP telephony system is used to determine the telephone numbers, names or other identifiers of individuals and businesses with whom the customer

communicates. This can include obtaining names and addresses from an address book maintained by or for the customer on the IP telephony system. This could also include reviewing CDRs for the customer to obtain the telephone numbers or identifiers that the customer has sent communications to or received communications from. If only a telephone number is available, it may be possible to use internal or external databases to determine a name associated with the telephone number.

[00115] In step S1604, invitations are sent to some or all of the individuals or businesses with whom the customer communicates. This could include an invitation to join the social networking system, and also an invitation to establish a link with the customer on the social networking system. In some instances, it may be possible to first check to determine if one of the individuals with whom the customer has been communicating is already a member of the social networking system. If so, the invitation may be limited to an invitation to establish a link with the customer.

[00116] Figure 17 illustrates steps of another method of determining when to invite individuals to join a social networking system, and possibly also to link to a customer of an IP telephony system. In step S1702, the customer's telephone conversations and voicemail messages are recorded. In step S1704, transcriptions of those recordings are made. In step S1706, the transcriptions are analyzed to extract names, telephone numbers and other identifiers for the individuals and businesses with whom the customer has been communicating. This step might also include analyzing text messages, e-mail messages and other forms of communications that are generated by or sent to the customer to extract names, telephone numbers and other identifiers.

[00117] In step S1708, invitations are sent to some or all of the individuals or businesses with whom the customer has been communicating. This could include an invitation to join the social networking system, and also an invitation to establish a link with the customer on the social networking system. Here again, in some instances it may be possible to first check to determine if one of the

individuals with whom the customer has been communicating is already a member of the social networking system. If so, the invitation may be limited to an invitation to establish a link with the customer.

[00118] In many of the methods described above, recommendations that two individuals should consider establishing a link on a social networking system or invitations to join a social networking system are issued. Those recommendations and invitations could be sent by either a social networking system or by an IP telephony system, depending on the situation. They could be delivered to the individuals in many different ways. They could be delivered via text messages or e-mail communications. They could be delivered via audio recordings, via live operators, or by having the individuals connect to an interactive voice response system. Any method of issuing and delivering such recommendations and invitations could be used.

[00119] While the foregoing description made reference to an IP telephony system, the methods and concepts described above are equally applicable to other types of telephony systems. Thus, references to an IP telephony system should not be considered in any way limiting.

[00120] While the technology has been described in connection with what is presently considered to be the most practical and preferred embodiments, it is to be understood that the technology is not to be limited to the disclosed embodiments, but on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

WHAT IS CLAIMED IS:

1. A method of recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

reviewing a first member's communications activity on a telephony system to create a list of identifiers associated with the first member's communications activity;

reviewing a second member's communications activity on the telephony system to create a list of identifiers associated with the second member's communications activity;

determining if identifiers associated with the first member's communications activity match identifiers associated with the second member's communications activity; and

recommending that a link between the first and second members be established on the social networking system if one or more of the identifiers associated with the first member's communications activity match identifiers associated with the second member's communications activity.

2. The method of claim 1, wherein the identifiers comprise telephone numbers from which the first and second members have received communications and to which the first and second members have sent communications.

3. The method of claim 1, wherein the reviewing steps comprise reviewing call detail records for the first and second members.

4. The method of claim 1, wherein the recommending step comprises recommending that a link between the first and second members be established

on the social networking system if at least a predetermined number of the identifiers associated with the first member's communications activity match identifiers associated with the second user's communications activity.

5. The method of claim 1, wherein the step of reviewing the first member's communications activity comprises:

creating a first list of identifiers associated with individuals and businesses to which the first member has sent communications and from which the first member has received communications;

consulting an identifier cross-reference database, using the identifiers on the first list, to identify additional identifiers that are associated with the individuals and businesses to which the first member has sent communications and from which the first member has received communications; and

wherein the determining step comprises determining if the identifiers on the first list or the additional identifiers identified during the consulting step match any of the identifiers associated with the second member's communications activity.

6. The method of claim 5, wherein creating a list of identifiers associated with second member's communications activity comprises:

creating a second list of identifiers associated with individuals and businesses to which the second member has sent communications and from which the second member has received communications;

consulting an identifier cross-reference database, using the identifiers on the second list, to identify additional identifiers that are associated with the individuals and businesses to which the second member has sent communications and from which the second member has received communications; and

wherein the determining step comprises determining if the identifiers on the first list or the additional identifiers identified when the identifier cross-reference table was consulted based on the identifiers on the first list match the identifiers on the second list or the additional identifiers identified when the identifier cross-reference database was consulted based on the identifiers on the second list.

7. The method of claim 1, wherein the step of reviewing the first member's communications activity comprises:

transcribing voicemail messages that have been created for the first member; and

creating lists of identifiers appearing in the transcriptions.

8. The method of claim 7, wherein the step of reviewing the second member's communications activity comprises:

transcribing voicemail messages that have been created for the second member; and

creating lists of identifiers appearing in the transcriptions.

9. The method of claim 1, wherein the step of reviewing the first member's communications activity comprises:

transcribing recordings of the first member's telephone conversations; and

creating lists of identifiers appearing in the transcriptions.

10. The method of claim 9, wherein the step of reviewing the second member's communications activity comprises:

transcribing recordings of the second member's telephone conversations; and

creating lists of identifiers appearing in the transcriptions.

11. The method of claim 1, wherein the step of reviewing the first member's communications activity comprises creating a list of identifiers appearing in text messages sent to the first member or received by the first member.

12. The method of claim 1, wherein the step of reviewing the first member's communications activity comprises creating a list of identifiers appearing in e-mail messages sent to the first member or received by the first member.

13. A system for recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

means for reviewing a first member's communications activity on a telephony system to create a list of identifiers associated with the first member's communications activity;

means for reviewing a second member's communications activity on the telephony system to create a list of identifiers associated with the second member's communications activity;

means for determining if identifiers associated with the first member's communications activity match identifiers associated with the second member's communications activity; and

means for recommending that a link between the first and second members be established on the social networking system if one or more of the identifiers associated with the first member's communications activity match identifiers associated with the second member's communications activity.

14. A system for recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

a first reviewing unit that reviews a first member's communications activity on a telephony system to create a list of identifiers associated with the first member's communications activity and that reviews a second member's communications activity on the telephony system to create a list of identifiers associated with the second member's communications activity;

a determining unit that determines if identifiers associated with the first member's communications activity match identifiers associated with the second member's communications activity; and

a link recommendation unit that recommends that a link between the first and second members be established on the social networking system if one or more of the identifiers associated with the first member's communications activity match identifiers associated with the second member's communications activity.

15. The system of claim 14, wherein the identifiers comprise telephone numbers from which the first and second members have received communications and to which the first and second members have sent communications.

16. The system of claim 14, wherein the reviewing unit reviews call detail records for the first and second members.

17. The system of claim 14, wherein the link recommendation unit recommends that a link between the first and second members be established on the social networking system if at least a predetermined number of the identifiers associated with the first member's communications activity match identifiers associated with the second user's communications activity.

18. The system of claim 14, wherein the reviewing unit creates a first list of identifiers associated with individuals and businesses to which the first member has sent communications and from which the first member has received communications, wherein the reviewing unit consults an identifier cross-reference database, using the identifiers on the first list, to identify additional identifiers that are associated with the individuals and businesses to which the first member has sent communications and from which the first member has received communications, and wherein the determining unit determines if the identifiers on the first list or the additional identifiers match any of the identifiers associated with the second member's communications activity.

19. The system of claim 18, wherein the reviewing unit also creates a second list of identifiers associated with individuals and businesses to which the second member has sent communications and from which the second member has received communications, wherein the reviewing unit consults an identifier cross-reference database, using the identifiers on the second list, to identify additional identifiers that are associated with the individuals and businesses to which the second member has sent communications and from which the second member has received communications, and wherein the determining unit determines if the identifiers on the first list or the additional identifiers derived the identifiers on the first list match the identifiers on the second list or the additional identifiers derived from the identifiers on the second list.

20. The system of claim 14, wherein the reviewing unit transcribes voicemail messages that have been created for the first member and creates lists of identifiers appearing in the transcriptions.

21. The system of claim 20, wherein the reviewing unit transcribes voicemail messages that have been created for the second member and creates lists of identifiers appearing in the transcriptions.

22. The system of claim 14, wherein the reviewing unit transcribes recordings of the first member's telephone conversations and creates lists of identifiers appearing in the transcriptions.

23. The system of claim 22, wherein the reviewing unit transcribes recordings of the second member's telephone conversations and creates lists of identifiers appearing in the transcriptions.

24. The system of claim 14, wherein the reviewing unit creates a list of identifiers appearing in text messages sent to the first member or received by the first member.

25. The system of claim 14, wherein the reviewing unit creates a list of identifiers appearing in e-mail messages sent to the first member or received by the first member.

26. A method of recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

reviewing a first member's communications activity on a telephony system and creating a list of identifiers associated with the first member's communications activity;

reviewing information appearing in a contact or link list maintained for a second member of the social networking system and creating a list of identifiers associated with the individuals and businesses appearing in the second customer's contact or link list;

determining if identifiers associated with the first member's communications activity match identifiers associated with the individuals and businesses appearing in the second member's contact or link list; and

recommending that a link be established between the first and second members on the social networking system if one or more of the identifiers associated with the first member's communications activity match identifiers associated with the individuals and businesses appearing in the second customer's contact or link list.

27. The method of claim 26, wherein the identifiers associated with the first member's communications activity comprise telephone numbers from which the first member has received communications and to which the first member has sent communications.

28. The method of claim 26, wherein the step of reviewing the first member's communications activity comprises reviewing call detail records for the first member.

29. The method of claim 26, wherein the recommending step comprises recommending that a link be established between the first and second members on the social networking system if at least a predetermined number of the identifiers associated with the first member's communications activity match identifiers associated with the individuals and businesses appearing in the second customer's contact or link list.

30. The method of claim 26, wherein the step of reviewing the first member's communications activity comprises:

creating a first list of identifiers associated with individuals and businesses to which the first member has sent communications and from which the first member has received communications;

consulting an identifier cross-reference database, using the identifiers on the first list, to identify additional identifiers that are associated with the individuals and businesses to which the first member has sent communications and from which the first member has received communications; and

wherein the determining step comprises determining if the identifiers on the first list and the additional identifiers that are identified during the consulting step match any of the identifiers associated with the individuals and businesses appearing in the second customer's contact or link list.

31. The method of claim 30, wherein creating a list of identifiers associated with the individuals and businesses appearing in the second customer's contact or link list comprises:

creating a second list of identifiers appearing in the second customer's contact or link list;

consulting an identifier cross-reference database, using the identifiers appearing in the second list, to identify additional identifiers that are associated with the individuals and businesses appearing in the second customer's contact or link list; and

wherein the determining step comprises determining if the identifiers on the first list or the additional identifiers that were identified when the identifier cross-reference database was consulted with the first list match any of the identifiers appearing in the second list or any of the additional identifiers that were identified when the identifier cross-reference database was consulted with the second list.

32. The method of claim 26, wherein creating a list of identifiers associated with the individuals and businesses appearing in the second customer's contact or link list comprises:

compiling a list of identifiers appearing in the second customer's contact or link list;

consulting an identifier cross-reference database, using the identifiers on the list, to identify additional identifiers that are associated with the individuals and businesses appearing in the second customer's contact or link list; and

wherein the determining step comprises determining if the identifiers associated with the first member's communications activity match any of the identifiers appearing in the list or any of the additional identifiers that were identified during the consulting step.

33. The method of claim 26, wherein the step of reviewing the first member's communications activity comprises:

transcribing voicemail messages that have been created for the first member; and

creating lists of identifiers appearing in the transcriptions.

34. The method of claim 26, wherein the step of reviewing the first member's communications activity comprises:

transcribing recordings of the first member's telephone conversations; and

creating lists of identifiers appearing in the transcriptions.

35. The method of claim 26, wherein the step of reviewing the first member's communications activity comprises creating a list of identifiers appearing in text messages or e-mail messages sent to the first member or received by the first member.

36. A system for recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

means for reviewing a first member's communications activity on a telephony system and creating a list of identifiers associated with the first member's communications activity;

means for reviewing information appearing in a contact or link list maintained for a second member of the social networking system and creating a list of identifiers associated with the individuals and businesses appearing in the second customer's contact or link list;

means for determining if identifiers associated with the first member's communications activity match identifiers associated with the individuals and businesses appearing in the second member's contact or link list; and

means for recommending that a link be established between the first and second members on the social networking system if one or more of the identifiers associated with the first member's communications activity match identifiers associated with the individuals and businesses appearing in the second customer's contact or link list.

37. A system for recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

a reviewing unit that reviews a first member's communications activity on a telephony system and that creating a list of identifiers associated with the first member's communications activity, wherein the reviewing unit also reviews information appearing in a contact or link list maintained for a second member of the social networking system and creates a list of identifiers associated with the individuals and businesses appearing in the second customer's contact or link list;

a determining unit that determines if identifiers associated with the first member's communications activity match identifiers associated with the individuals and businesses appearing in the second member's contact or link list; and

a link recommendation unit that recommends that a link be established between the first and second members on the social networking system if one or more of the identifiers associated with the first member's communications activity match identifiers associated with the individuals and businesses appearing in the second customer's contact or link list.

38. The system of claim 37, wherein the identifiers associated with the first member's communications activity comprise telephone numbers from which the first member has received communications and to which the first member has sent communications.

39. The system of claim 37, wherein the reviewing unit reviews call detail records for the first member.

40. The system of claim 37, wherein the link recommendation unit recommends that a link be established between the first and second members on the social networking system if at least a predetermined number of the identifiers associated with the first member's communications activity match identifiers associated with the individuals and businesses appearing in the second customer's contact or link list.

41. The system of claim 37, wherein the reviewing unit creates a first list of identifiers associated with individuals and businesses to which the first member has sent communications and from which the first member has received communications, and wherein the reviewing unit also consults an identifier cross-reference database, using the identifiers on the first list, to identify additional

identifiers that are associated with the individuals and businesses to which the first member has sent communications and from which the first member has received communications; and

wherein the determining unit determines if the identifiers on the first list and the additional identifiers match any of the identifiers associated with the individuals and businesses appearing in the second customer's contact or link list.

42. The system of claim 41, wherein the reviewing unit creates a second list of identifiers appearing in the second customer's contact or link list and consults an identifier cross-reference database, using the identifiers appearing in the second list, to identify additional identifiers that are associated with the individuals and businesses appearing in the second customer's contact or link list, and wherein the determining unit determines if the identifiers on the first list or the corresponding additional identifiers identified based on the identifiers on the first list match any of the identifiers appearing in the second list or any of the corresponding additional identifiers identified based on the identifiers appearing on the second list.

43. The system of claim 37, the reviewing unit compiles a list of identifiers appearing in the second customer's contact or link list, and consults an identifier cross-reference database, using the identifiers on the list, to identify additional identifiers that are associated with the individuals and businesses appearing in the second customer's contact or link list, and wherein the determining unit determines if the identifiers associated with the first member's communications activity match any of the identifiers appearing in the list or any of the additional identifiers.

44. The system of claim 37, wherein the reviewing unit transcribes voicemail messages that have been created for the first member, and creates lists of identifiers appearing in the transcriptions.

45. The system of claim 37, wherein the reviewing unit transcribes recordings of the first member's telephone conversations, and creates lists of identifiers appearing in the transcriptions.

46. The system of claim 37, wherein the reviewing unit creates a list of identifiers appearing in text messages or e-mail messages sent to the first member or received by the first member.

47. A method of recommending that a first member of a social networking system establish a link with another member of the social networking system, comprising:

reviewing a first member's communications activity on a telephony system, to create a list of identifiers associated with the first member's communications activity;

determining if any individuals or businesses associated with the identifiers on the list created in the reviewing step are members of the social networking system; and

recommending that the first member establish a link on the social networking system with an individual or business associated with an identifier on the list created during the reviewing step if the individual or business is also a member of the social networking system.

48. The method of claim 47, wherein the determining step comprises:

identifying names of individuals or businesses associated with the identifiers on the list created during the reviewing step; and

using the identified names to determine if any of the individuals or businesses associated with the identifiers on the list created during the reviewing step are members of the social networking system.

49. The method of claim 48, wherein the identifying step comprises consulting an identifier cross-reference database to obtain names of individuals and businesses that are associated with the identifiers on the list created during the reviewing step.

50. The method of claim 48, wherein the list of identifiers comprises a list of telephone numbers to which the first member has sent communications and from which the first member has received communications.

51. The method of claim 47, wherein the step of reviewing the first member's communications activity comprises:

transcribing voicemail messages that have been created for the first member; and

creating lists of identifiers appearing in the transcriptions.

52. The method of claim 47, wherein the step of reviewing the first member's communications activity comprises:

transcribing recordings of the first member's telephone conversations; and

creating lists of identifiers appearing in the transcriptions.

53. The method of claim 47, wherein the step of reviewing the first member's communications activity comprises creating a list of identifiers appearing in text messages sent to the first member or received by the first member.

54. The method of claim 47, wherein the step of reviewing the first member's communications activity comprises creating a list of identifiers appearing in e-mail messages sent to the first member or received by the first member.

55. A system for recommending that a first member of a social networking system establish a link with another member of the social networking system, comprising:

means for reviewing a first member's communications activity on a telephony system, to create a list of identifiers associated with the first member's communications activity;

means for determining if any individuals or businesses associated with the identifiers on the list created in the reviewing step are members of the social networking system; and

means for recommending that the first member establish a link on the social networking system with an individual or business associated with an identifier on the list created during the reviewing step if the individual or business is also a member of the social networking system.

56. A system for recommending that a first member of a social networking system establish a link with another member of the social networking system, comprising:

a reviewing unit that reviews a first member's communications activity on a telephony system, to create a list of identifiers associated with the first member's communications activity;

a determining unit that determines if any individuals or businesses associated with the identifiers on the list created by the reviewing unit are members of the social networking system; and

a link recommendation unit that recommends that the first member establish a link on the social networking system with an individual or business

associated with an identifier on the list created by the reviewing unit if the individual or business is also a member of the social networking system.

57. The system of claim 56, wherein the determining unit identifies names of individuals or businesses associated with the identifiers on the list created by the reviewing unit, and uses the identified names to determine if any of the individuals or businesses associated with the identifiers on the list are members of the social networking system.

58. The system of claim 57, wherein the determining unit consults an identifier cross-reference database to obtain names of individuals and businesses that are associated with the identifiers on the list created by the reviewing unit.

59. The system of claim 57, wherein the list of identifiers comprises a list of telephone numbers to which the first member has sent communications and from which the first member has received communications.

60. The system of claim 56, wherein the reviewing unit transcribes voicemail messages that have been created for the first member and creates lists of identifiers appearing in the transcriptions.

61. The system of claim 56, wherein the reviewing unit transcribes recordings of the first member's telephone conversations and creates lists of identifiers appearing in the transcriptions.

62. The system of claim 56, wherein the reviewing unit creates a list of identifiers appearing in text messages sent by the first member or received by the first member.

63. The system of claim 56, wherein the reviewing unit creates a list of identifiers appearing in e-mail messages sent to the first member or received by the first member.

64. A method of recommending that a first member of a social networking system establish a link with another member of the social networking system, comprising:

reviewing a contact list or address book for a first member of a social networking system that is maintained on a telephony system to create a list of identifiers associated with entries on the first member's contact list or address book;

determining if any individuals or businesses associated with the identifiers on the list are members of the social networking system; and

recommending that the first member establish a link on the social networking system with an individual or business associated with an identifier on the list if the individual or business is also a member of the social networking system.

65. The method of claim 64, wherein the determining step comprises:

identifying names of individuals or businesses associated with the identifiers on the list; and

using the identified names to determine if any of the individuals or businesses associated with the identifiers on the list are members of the social networking system.

66. The method of claim 65, wherein the identifying step comprises consulting an identifier cross-reference database maintained by the telephony system to obtain names of individuals and businesses that are associated with the identifiers on the list.

67. The method of claim 64, wherein the reviewing step comprises reviewing a contact list or address book for the first member that is stored in a central database facility of the telephony system.

68. The method of claim 64, wherein the reviewing step comprises reviewing a contact list or address book for the first member that is stored on a telephony device that is provided with service by the telephony system.

69. The method of claim 64, wherein the reviewing step comprises reviewing a contact list or address book for the first member that is stored on a mobile telephony device that is provided with service by the telephony system.

70. A system for recommending that a first member of a social networking system establish a link with another member of the social networking system, comprising:

means for reviewing a contact list or address book for a first member of a social networking system that is maintained on a telephony system to create a list of identifiers associated with entries on the first member's contact list or address book;

means for determining if any individuals or businesses associated with the identifiers on the list are members of the social networking system; and

means for recommending that the first member establish a link on the social networking system with an individual or business associated with an identifier on the list if the individual or business is also a member of the social networking system.

71. A system for recommending that a first member of a social networking system establish a link with another member of the social networking system, comprising:

a reviewing unit that reviews a contact list or address book for a first member of a social networking system that is maintained on a telephony system to create a list of identifiers associated with entries on the first member's contact list or address book;

a determining unit that determines if any individuals or businesses associated with the identifiers on the list are members of the social networking system; and

a link recommendation unit that recommends that the first member establish a link on the social networking system with an individual or business associated with an identifier on the list if the individual or business is also a member of the social networking system.

72. The system of claim 71, wherein the determining unit identifies names of individuals or businesses associated with the identifiers on the list, and uses the identified names to determine if any of the individuals or businesses associated with the identifiers on the list are members of the social networking system.

73. The system of claim 72, wherein the identifying unit consults an identifier cross-reference database maintained by the telephony system to obtain names of individuals and businesses that are associated with the identifiers on the list.

74. The system of claim 71, wherein the reviewing unit reviews a contact list or address book for the first member that is stored in a central database facility of the telephony system.

75. The system of claim 71, wherein the reviewing unit reviews a contact list or address book for the first member that is stored on a telephony device that is provided with service by the telephony system.

76. The system of claim 71, wherein the reviewing unit reviews a contact list or address book for the first member that is stored on a mobile telephony device that is provided with service by the telephony system.

77. A method of recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

reviewing information appearing in a contact or link list maintained for the first member on the social networking system and creating a first list of identifiers associated with the individuals and businesses appearing in the first member's contact or link list;

reviewing information appearing in a contact or link list maintained for the second member on the social networking system to create a second list of identifiers associated with the individuals and businesses appearing in the second member's contact or link list;

consulting an identifier cross-reference database maintained by a telephony system, using the identifiers from the first list, to identify additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list;

consulting the identifier cross-reference database maintained by the telephony system, using the identifiers from the second list, to identify additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list; and

recommending that the first member establish a link with the second member on the social networking system if any of the identifiers on the first list or any of the additional identifiers associated with the individuals and businesses appearing in the first member's contact or link list match any of the identifiers on the second list or any of the additional identifiers associated with

the individuals and businesses appearing in the second member's contact or link list.

78. The method of claim 77, further comprising creating the identifier cross-reference database, at least in part, using information obtained from records of communications sent from the first and second members and received by the first and second members through the telephony system.

79. The method of claim 77, wherein the identifiers on the first and second lists are telephone numbers.

80. The method of claim 79, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are also telephone numbers.

81. The method of claim 79, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are a type of identifier other than telephone numbers.

82. The method of claim 79, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are e-mail addresses.

83. The method of claim 77, wherein the identifiers on the first and second lists are e-mail addresses.

84. The method of claim 83, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are a type of identifier other than e-mail addresses.

85. The method of claim 83, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are telephone numbers.

86. A system for recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

first identifying means for reviewing information appearing in a contact or link list maintained for the first member on the social networking system and creating a first list of identifiers associated with the individuals and businesses appearing in the first member's contact or link list;

second identifying means for reviewing information appearing in a contact or link list maintained for the second member on the social networking system to create a second list of identifiers associated with the individuals and businesses appearing in the second member's contact or link list;

first consulting means for consulting an identifier cross-reference database maintained by a telephony system, using the identifiers from the first list, to identify additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list;

second consulting means for consulting the identifier cross-reference database maintained by the telephony system, using the identifiers from the second list, to identify additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list; and

means for recommending that the first member establish a link with the second member on the social networking system if any of the identifiers on the first list or any of the additional identifiers associated with the individuals and businesses appearing in the first member's contact or link list match any of the identifiers on the second list or any of the additional identifiers associated with the individuals and businesses appearing in the second member's contact or link list.

87. A system for recommending that a first member of a social networking system establish a link with a second member of the social networking system, comprising:

a first reviewing unit that reviews information appearing in a contact or link list maintained for the first member on the social networking system and creating a first list of identifiers associated with the individuals and businesses appearing in the first member's contact or link list;

a second reviewing unit that reviews information appearing in a contact or link list maintained for the second member on the social networking system to create a second list of identifiers associated with the individuals and businesses appearing in the second member's contact or link list;

a first consulting unit that consults an identifier cross-reference database maintained by a telephony system, using the identifiers from the first list, to identify additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list;

a second consulting unit that consults the identifier cross-reference database maintained by the telephony system, using the identifiers from the

second list, to identify additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list; and

a link recommendation unit that recommends that the first member establish a link with the second member on the social networking system if any of the identifiers on the first list or any of the additional identifiers associated with the individuals and businesses appearing in the first member's contact or link list match any of the identifiers on the second list or any of the additional identifiers associated with the individuals and businesses appearing in the second member's contact or link list.

88. The system of claim 87, further comprising an identifier cross-reference database that is created, at least in part, using information obtained from records of communications sent from the first and second members and received by the first and second members through the telephony system.

89. The system of claim 87, wherein the identifiers on the first and second lists are telephone numbers.

90. The system of claim 89, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are also telephone numbers.

91. The system of claim 89, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are a type of identifier other than telephone numbers.

92. The system of claim 89, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are e-mail addresses.

93. The system of claim 89, wherein the identifiers on the first and second lists are e-mail addresses.

94. The system of claim 93, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are a type of identifier other than e-mail addresses.

95. The system of claim 93, wherein the additional identifiers that are associated with the individuals and businesses appearing in the first member's contact or link list and the additional identifiers that are associated with the individuals and businesses appearing in the second member's contact or link list are telephone numbers.

96. A method of adding information to or updating information in a user's contact list or address book on a telephony system, comprising:

obtaining a user's credentials for a social networking system;

obtaining information from the user's contact or link information that is present on the social networking system using the obtained user credentials; and

adding information to or updating information in the user's contact list or address book on a telephony system using the information obtained from the user's contact or link information on the social networking system.

97. The method of claim 96, further comprising adding information to or updating information in an identifier cross-reference database present on the telephony system using information obtained from the user's contact or link information on the social networking system.

98. The method of claim 96, wherein the adding step comprises adding information to or updating information in a user's contact list or address book that is stored in a central database maintained by the telephony system.

99. The method of claim 96, wherein the adding step comprises adding information to or updating information in a user's contact list or address book that is stored on a telephony device that is provided with service by the telephony system.

100. The method of claim 96, wherein the adding step comprises adding information to or updating information in a user's contact list or address book that is stored on a mobile telephony device that is provided with service by the telephony system, and wherein the adding step is performed wirelessly.

101. A system for adding information to or updating information in a user's contact list or address book on a telephony system, comprising:

means for obtaining a user's credentials for a social networking system;

means for obtaining information from the user's contact or link information that is present on the social networking system using the obtained user credentials; and

means for adding information to or updating information in the user's contact list or address book on a telephony system using the information obtained from the user's contact or link information on the social networking system.

102. A system for adding information to or updating information in a user's contact list or address book on a telephony system, comprising:

a first obtaining unit that obtains a user's credentials for a social networking system;

a second obtaining unit that obtains information from the user's contact or link information that is present on the social networking system using the obtained user credentials; and

an updating unit that adds information to or updates information in the user's contact list or address book on a telephony system using the information obtained from the user's contact or link information on the social networking system.

103. The system of claim 102, wherein the updating unit also adds information to or updates information in an identifier cross-reference database present on the telephony system using information obtained from the user's contact or link information on the social networking system.

104. The system of claim 102, wherein the updating unit adds information to or updates information in a user's contact list or address book that is stored in a central database maintained by the telephony system.

105. The system of claim 102, wherein the updating unit adds information to or updates information in a user's contact list or address book that is stored on a telephony device that is provided with service by the telephony system.

106. The system of claim 102, wherein the updating unit adds information to or updates information in a user's contact list or address book that is stored on a mobile telephony device that is provided with service by the telephony system, and wherein the adding step is performed wirelessly.

107. A method of inviting an entity to join a social networking system, comprising:

reviewing a user's communications activity on a telephony system and creating a list of identifiers associated with the user's communications activity;

identifying an entity associated with at least one of the identifiers on the list; and

inviting the entity to join a social networking system upon which the user is a member.

108. The method of claim 107, further comprising inviting the entity to form a link with the user on the social networking system.

109. The method of claim 107, wherein the reviewing step comprises creating a list of identifiers associated with incoming communications that the user has received through the telephony system and outgoing communications that the user has sent through the telephony system.

110. The method of claim 107, wherein the identifiers are telephone numbers, and wherein the identifying step comprises identifying an individual or business associated with at least one of the telephone numbers on the list.

111. The method of claim 107, wherein the reviewing step comprises reviewing transcripts of voicemail messages that have been left for the user and creating a list of identifiers appearing in those transcripts.

112. The method of claim 107, wherein the reviewing step comprises reviewing transcripts of telephone conversations that the user has conducted over the telephony system and creating a list of identifiers appearing in those transcripts.

113. The method of claim 107, wherein the reviewing step comprises reviewing text messages that the user has received through the telephony system or that the user has sent through the telephony system and creating a list of identifiers appearing in those text messages.

114. The method of claim 107, wherein the reviewing step comprises reviewing e-mail messages that the user has received through the telephony system or that the user has sent through the telephony system and creating a list of identifiers appearing in those e-mail messages.

115. A system for inviting an entity to join a social networking system, comprising:

means for reviewing a user's communications activity on a telephony system and creating a list of identifiers associated with the user's communications activity;

means for identifying an entity associated with at least one of the identifiers on the list; and

means for inviting the entity to join a social networking system upon which the user is a member.

116. A system for inviting an entity to join a social networking system, comprising:

a reviewing unit that reviews a user's communications activity on a telephony system and creates a list of identifiers associated with the user's communications activity;

an identifying unit that identifies an entity associated with at least one of the identifiers on the list; and

an invitation unit that invites the entity to join a social networking system upon which the user is a member.

117. The system of claim 116, wherein the invitation unit also invites the entity to form a link with the user on the social networking system.

118. The system of claim 116, wherein the reviewing unit creates a list of identifiers associated with incoming communications that the user has received through the telephony system and outgoing communications that the user has sent through the telephony system.

119. The system of claim 116, wherein the identifiers are telephone numbers, and wherein the identifying unit identifies an individual or business associated with at least one of the telephone numbers on the list.

120. The system of claim 116, wherein the reviewing unit reviews transcripts of voicemail messages that have been left for the user and creates a list of identifiers appearing in those transcripts.

121. The system of claim 116, wherein the reviewing unit reviews transcripts of telephone conversations that the user has conducted over the telephony system and creates a list of identifiers appearing in those transcripts.

122. The system of claim 116, wherein the reviewing unit reviews text messages that the user has received through the telephony system or that the user has sent through the telephony system and creates a list of identifiers appearing in those text messages.

123. The system of claim 116, wherein the reviewing unit reviews e-mail messages that the user has received through the telephony system or that the user has sent through the telephony system and creates a list of identifiers appearing in those e-mail messages.

124. A method of recommending the delivery of an advertising message, comprising:

analyzing a user's communications activity on a telephony system to identify at least one communications activity pattern; and

recommending to a business that an advertising message be delivered to the user based on the identified communications activity pattern.

125. The method of claim 124, wherein the analyzing step comprises determining a first type of businesses to which the user has sent communications or from which the user has received communications, and wherein the recommending step comprises recommending that an advertising message be delivered to the user from a business that is the same or similar to the first type of business.

126. The method of claim 125, wherein the analyzing step further comprises determining a timing of when the user has received incoming communications from the first type of business or when the user has sent outgoing communications to the first type of business, and wherein the recommending step comprises recommending that an advertising message be delivered to the user based on the determined timing.

127. The method of claim 126, further comprising obtaining information about the user's movements from a mobile telephony device associated with the user, and wherein the recommending step comprises recommending that an advertising message be delivered to the user based on the obtained information about the user's movements.

128. The method of claim 124, wherein the analyzing step comprises determining a timing of when the user has received incoming communications or when the user has sent outgoing communications, and wherein the recommending step comprises recommending that an advertising message be delivered to the user based on the determined timing.

129. The method of claim 124, further comprising obtaining information about the user's movements from a mobile telephony device associated with the user, and wherein the recommending step comprises recommending that an advertising message be delivered to the user based on the obtained information about the user's movements.

130. The method of claim 129, wherein the step of obtaining information about the user's movements comprises identifying at least one of the user's common movement paths, and wherein the recommending step comprises recommending that an advertising message be delivered to the user from a businesses located along at least one of the user's common movement paths.

131. The method of claim 124, wherein the step of recommending to a business that an advertising message be delivered to the user does not divulge to the business the identity of the user.

132. The method of claim 131, further comprising delivering an advertising message to the user in response to instructions received from a business.

133. The method of claim 124, wherein the step of analyzing a user's communications activity comprises:

determining identifiers associated with the user's communications activity; and

determining at least one type of businesses to which the user has sent a communication or from which the user has received a communication based on the determined identifiers.

134. The method of claim 133, wherein the identifiers are telephone numbers.

135. The method of claim 133, wherein the step of determining identifiers comprises extracting identifiers from transcriptions of voicemail messages left for the user.

136. The method of claim 133, wherein the step of determining identifiers comprises extracting identifiers from transcriptions of telephone conversations that the user has conducted over the telephony system.

137. The method of claim 133, wherein the step of determining identifiers comprises extracting identifiers from incoming e-mail messages that the user has received or outgoing e-mail messages that the user has sent.

138. The method of claim 133, wherein the step of determining identifiers comprises extracting identifiers from incoming text messages that the user has received or outgoing text messages that the user has sent.

139 A system for recommending the delivery of an advertising message, comprising:

means for analyzing a user's communications activity on a telephony system to identify at least one communications activity pattern; and

means for recommending to a business that an advertising message be delivered to the user based on the identified communications activity pattern.

140. A system for recommending the delivery of an advertising message, comprising:

an analyzing unit that analyzes a user's communications activity on a telephony system to identify at least one communications activity pattern; and

an advertising recommendation unit that recommends to a business that an advertising message be delivered to the user based on the identified communications activity pattern.

141. The system of claim 140, wherein the analyzing unit determines a first type of businesses to which the user has sent communications or from which the user has received communications, and wherein the advertising recommendation unit recommends that an advertising message be delivered to the user from a business that is the same or similar to the first type of business.

142. The system of claim 141, wherein the analyzing unit also determines a timing of when the user has received incoming communications from the first type of business or when the user has sent outgoing communications to the first type of business, and wherein the advertising recommendation unit recommends that an advertising message be delivered to the user based on the determined timing.

143. The system of claim 140, wherein the analyzing unit obtains information about the user's movements from a mobile telephony device associated with the user, and wherein the advertising recommendation unit recommends that an advertising message be delivered to the user based on the obtained information about the user's movements.

144. The system of claim 143, wherein analyzing unit identifies at least one of the user's common movement paths, and wherein the advertising recommendation unit recommends that an advertising message be delivered to the user from a businesses located along at least one of the user's common movement paths.

145. The system of claim 140, wherein the advertising recommendation unit does not divulge to the business the identity of the user.

146. The system of claim 145, further comprising an advertising delivery unit that delivers an advertising message to the user in response to instructions received from a business.

147. The system of claim 140, wherein the analyzing unit determines identifiers associated with the user's communications activity, and determines at least one type of businesses to which the user has sent a communication or from which the user has received a communication based on the determined identifiers.

148. The system of claim 147, wherein the analyzing unit determines by extracting the identifiers from transcriptions of voicemail messages left for the user.

149. The system of claim 147, wherein the analyzing unit determines identifiers by extracting the identifiers from transcriptions of telephone conversations that the user has conducted over the telephony system.

150. The system of claim 147, wherein the analyzing unit determines identifiers by extracting the identifiers from incoming e-mail messages that the user has received or outgoing e-mail messages that the user has sent.

151. The system of claim 147, wherein the analyzing unit determines identifiers by extracting the identifiers from incoming text messages that the user has received or outgoing text messages that the user has sent.

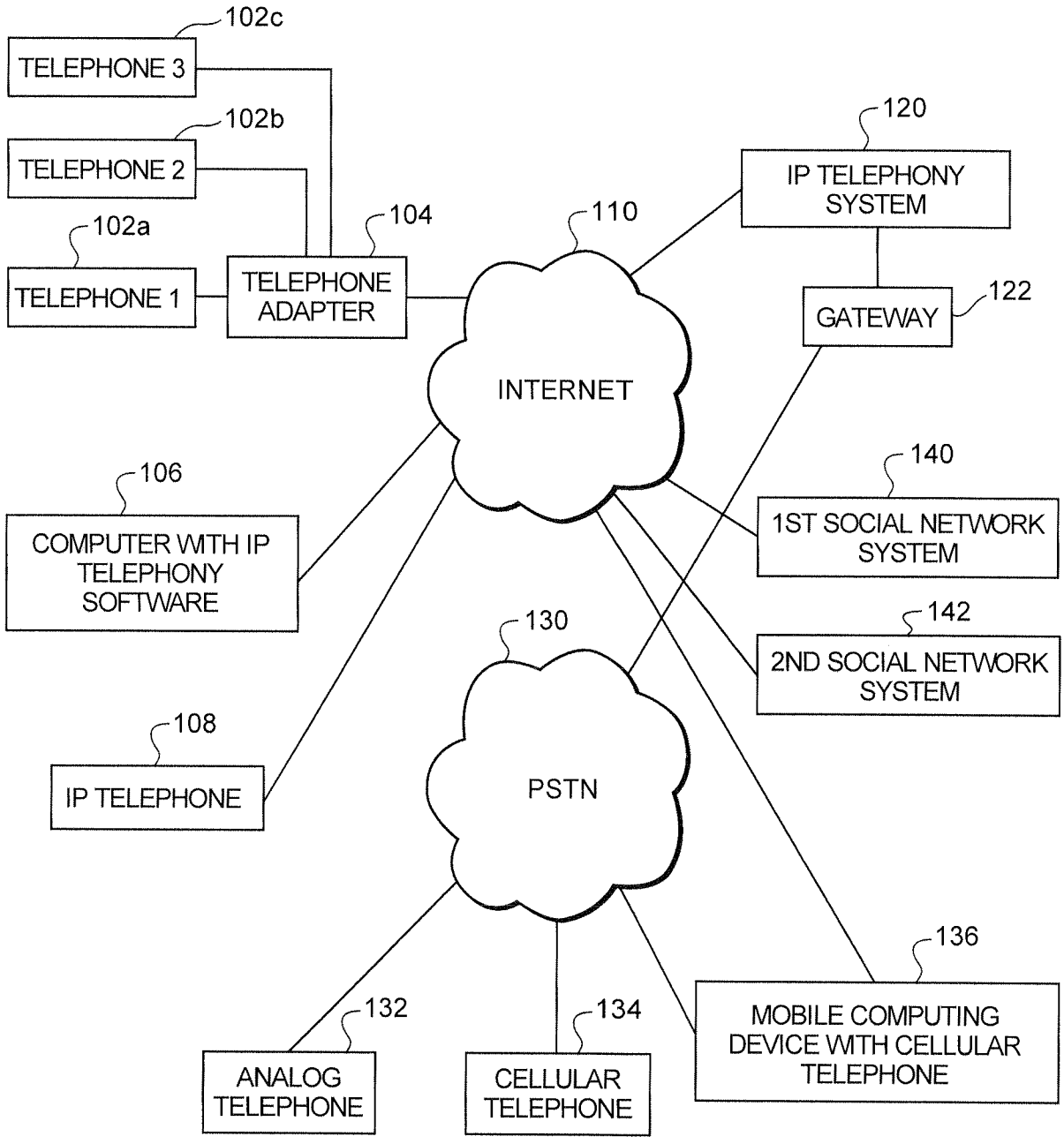
102c
TELEPHONE 3
102b
TELEPHONE 2
102a
TELEPHONE 1
104
TELEPHONE ADAPTER
110
INTERNET
120
IP TELEPHONY SYSTEM
122
GATEWAY
106
COMPUTER WITH IP TELEPHONY SOFTWARE
140
1ST SOCIAL NETWORK SYSTEM
142
2ND SOCIAL NETWORK SYSTEM
130
PSTN
108
IP TELEPHONE
136
MOBILE COMPUTING DEVICE WITH CELLULAR TELEPHONE
132
ANALOG TELEPHONE
134
CELLULAR TELEPHONE

FIGURE 1

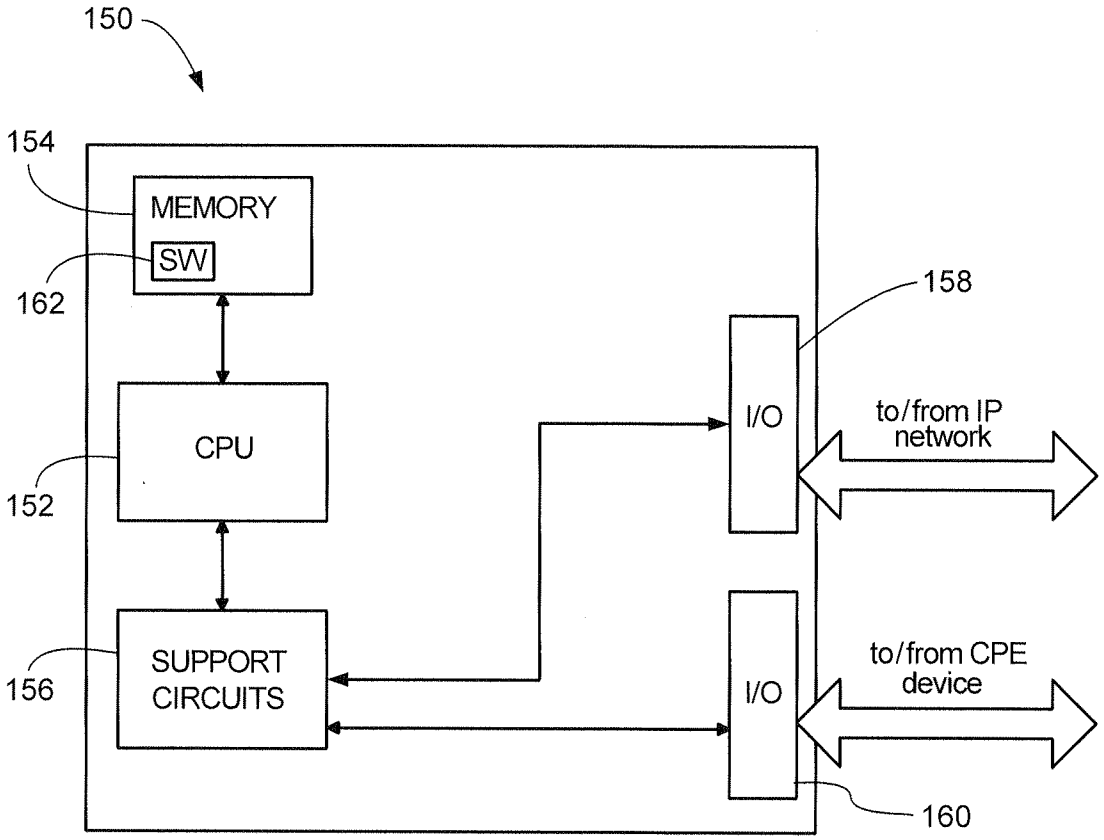
150
154
MEMORY
SW
162
158
CPU
I/O
to/from IP network
152
SUPPORT CIRCUITS
156
I/O
to/from CPE device
160

FIGURE 2

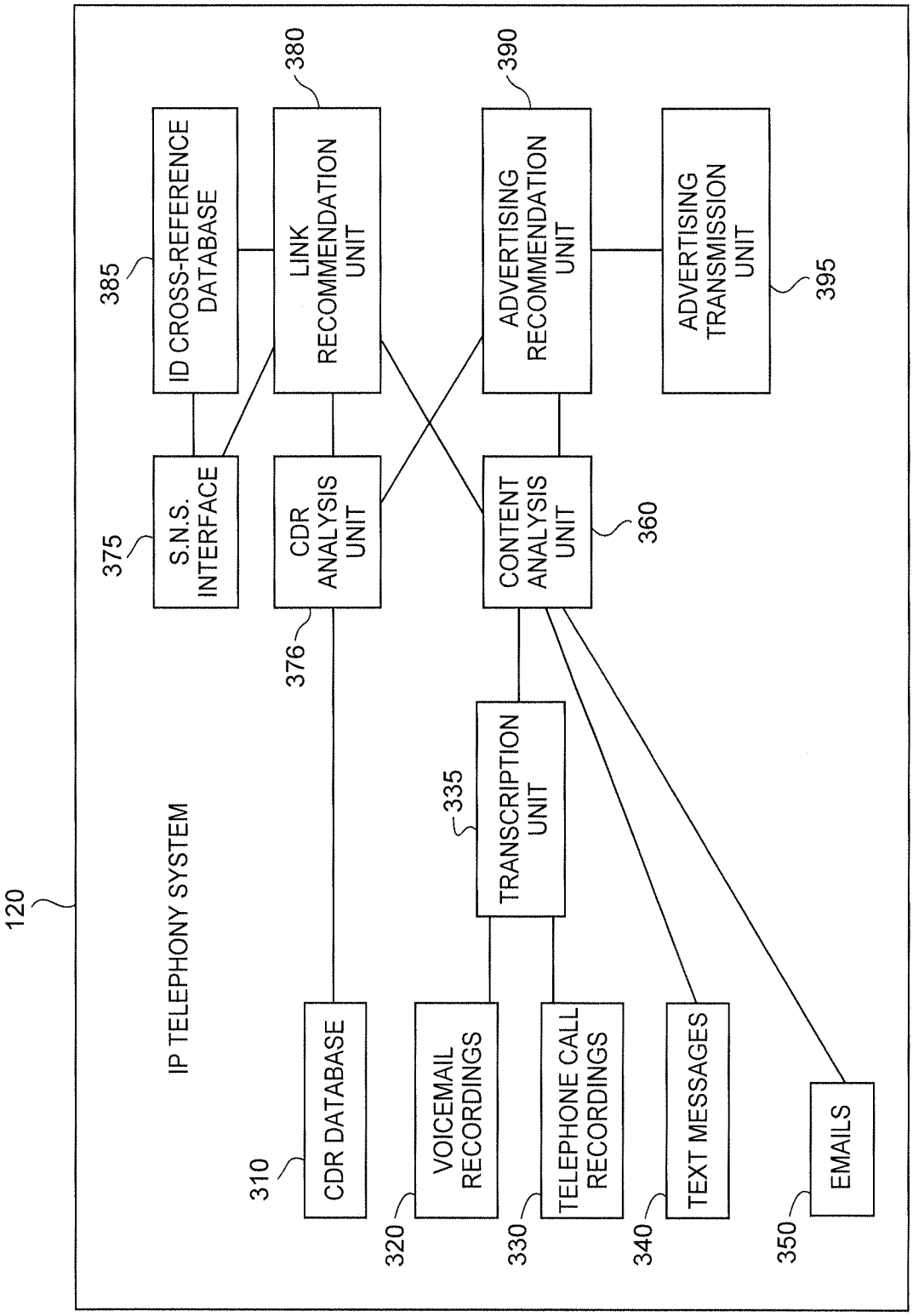
120
IP TELEPHONY SYSTEM
385
ID CROSS-REFERENCE DATABASE
380
LINK RECOMMENDATION UNIT
390
ADVERTISING RECOMMENDATION UNIT
ADVERTISING TRANSMISSION UNIT
395
375
S.N.S. INTERFACE
CDR ANALYSIS UNIT
CONTENT ANALYSIS UNIT
360
376
335
TRANSCRIPTION UNIT
310
CDR DATABASE
320
VOICEMAIL RECORDINGS
330
TELEPHONE CALL RECORDINGS
340
TEXT MESSAGES
350
EMAILS

FIGURE 3

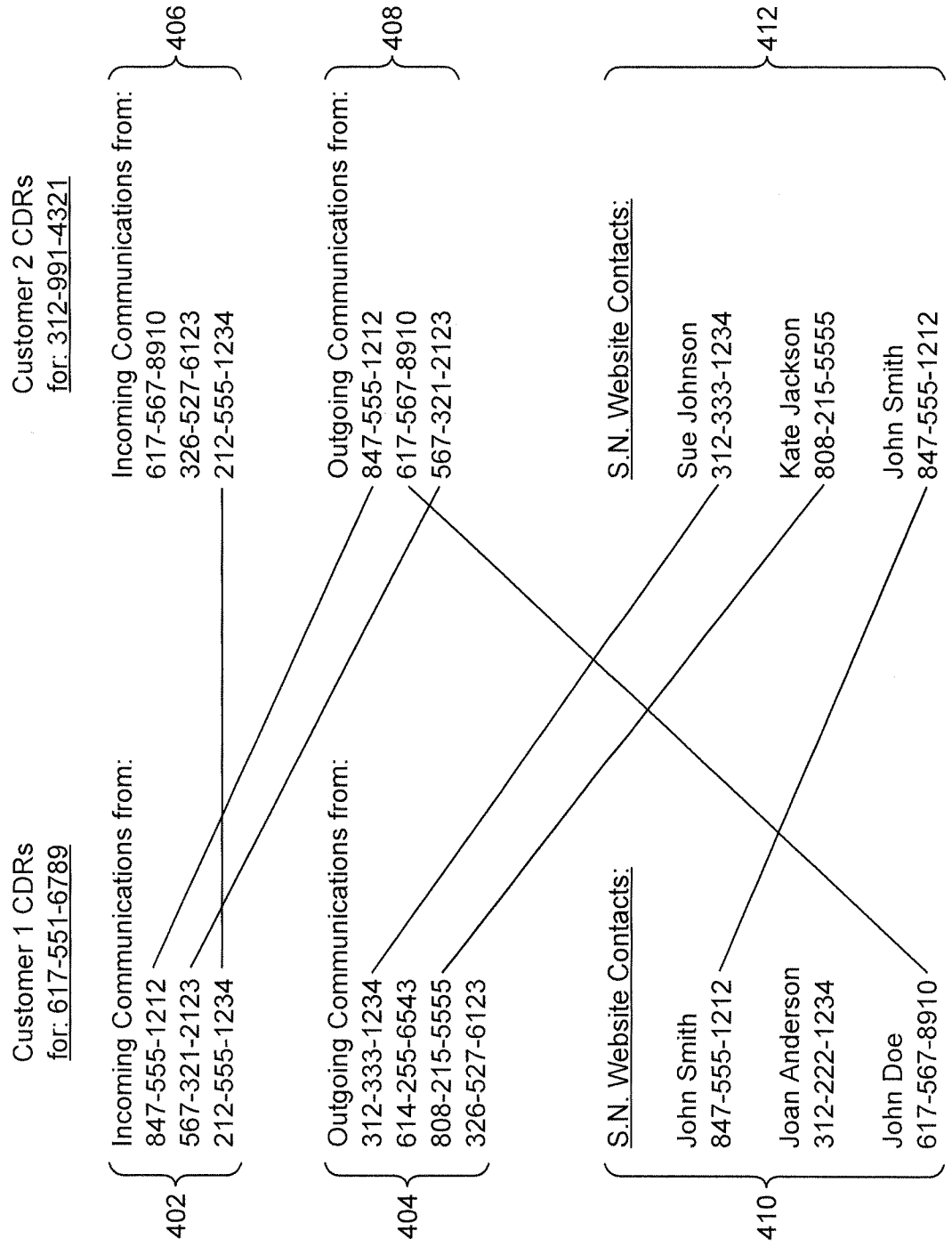
Customer 1 CDRs
for: 617-551-6789
Incoming Communications from:
847-555-1212
567-321-2123
212-555-1234
402
Outgoing Communications from:
312-333-1234
614-255-6543
808-215-5555
326-527-6123
404
S.N. Website Contacts:
John Smith
847-555-1212
Joan Anderson
312-222-1234
John Doe
617-567-8910
410
Customer 2 CDRs
for: 312-991-4321
Incoming Communications from:
617-567-8910
326-527-6123
212-555-1234
406
Outgoing Communications from:
847-555-1212
617-567-8910
567-321-2123
408
S.N. Website Contacts:
Sue Johnson
312-333-1234
Kate Jackson
808-215-5555
John Smith
847-555-1212
412

FIGURE 4

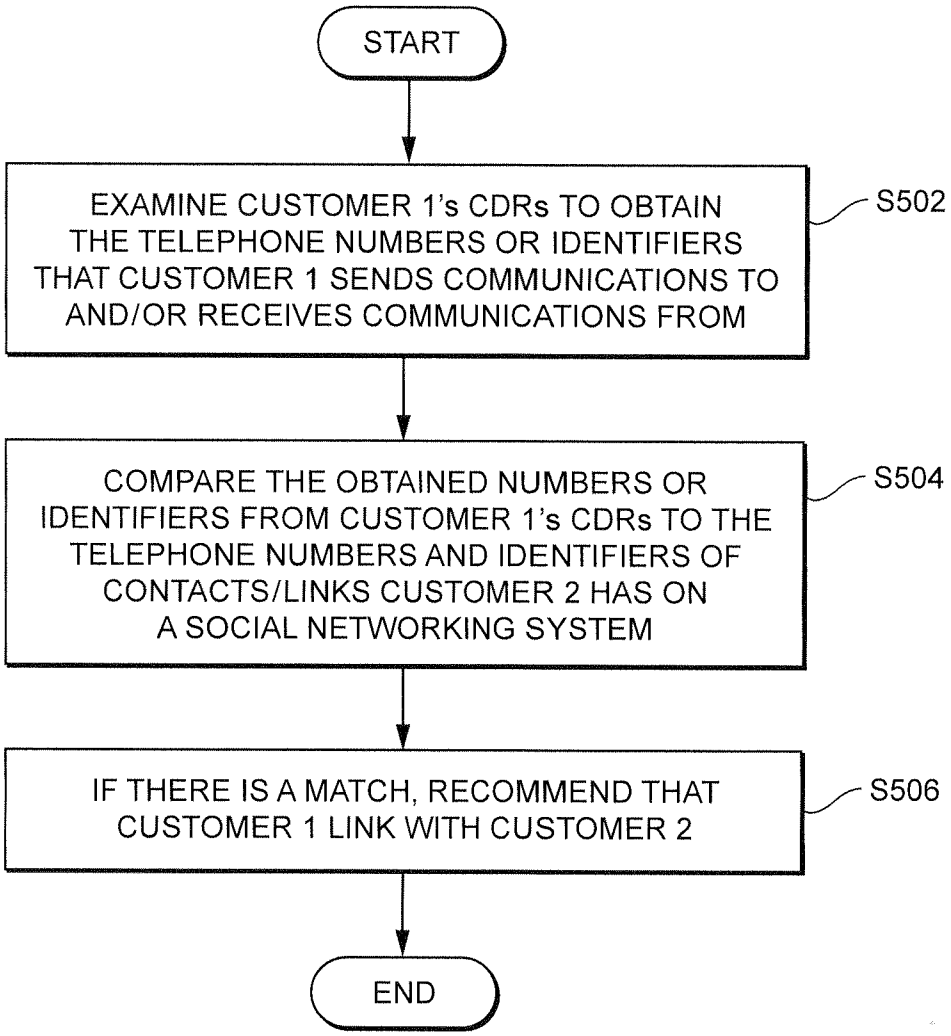
START
EXAMINE CUSTOMER 1's CDRs TO OBTAIN THE TELEPHONE NUMBERS OR IDENTIFIERS THAT CUSTOMER 1 SENDS COMMUNICATIONS TO AND/OR RECEIVES COMMUNICATIONS FROM
S502
COMPARE THE OBTAINED NUMBERS OR IDENTIFIERS FROM CUSTOMER 1's CDRs TO THE TELEPHONE NUMBERS AND IDENTIFIERS OF CONTACTS/LINKS CUSTOMER 2 HAS ON A SOCIAL NETWORKING SYSTEM
S504
IF THERE IS A MATCH, RECOMMEND THAT CUSTOMER 1 LINK WITH CUSTOMER 2
S506
END

FIGURE 5

IP TELEPHONY SYSTEM IDENTIFIER	NAME	HOME TELEPHONE NUMBER	MOBILE TELEPHONE NUMBER	E-MAIL ADDRESS	I.M. IDENTIFIER	ADDRESS
1234567	JOHN SMITH	847 555 1212		JS1@aol.com		44 Maple Ln. Chicago, IL
2345678	JOHN DOE		617 567 8910	JB@von.com		
3456789	SUE JOHNSON	312 333 1234		SJ@von.com		
4567890	JOAN ANDERSON		312 222 1234	JA@aol.com		41 Oak Ln. Chicago, IL
5678901	KATE JACKSON		808 215 5555			
.	.					
.	.					
.	.					
.	.					
.	.					
.	.					

FIGURE 6

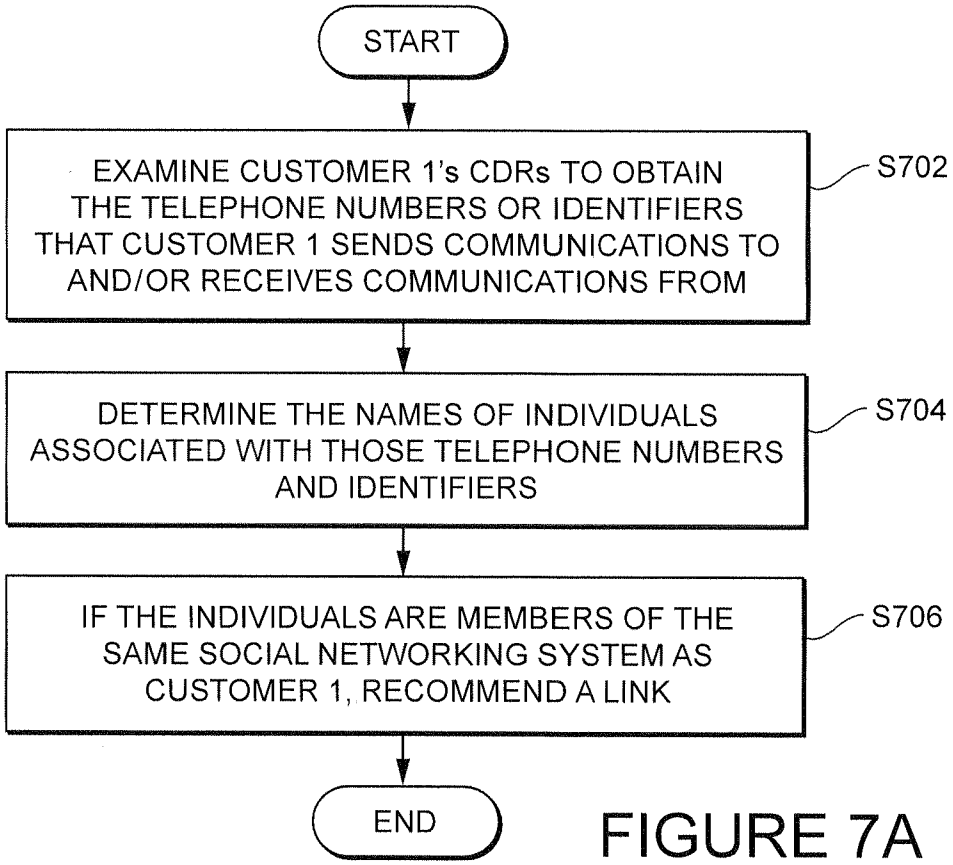

FIGURE 7A

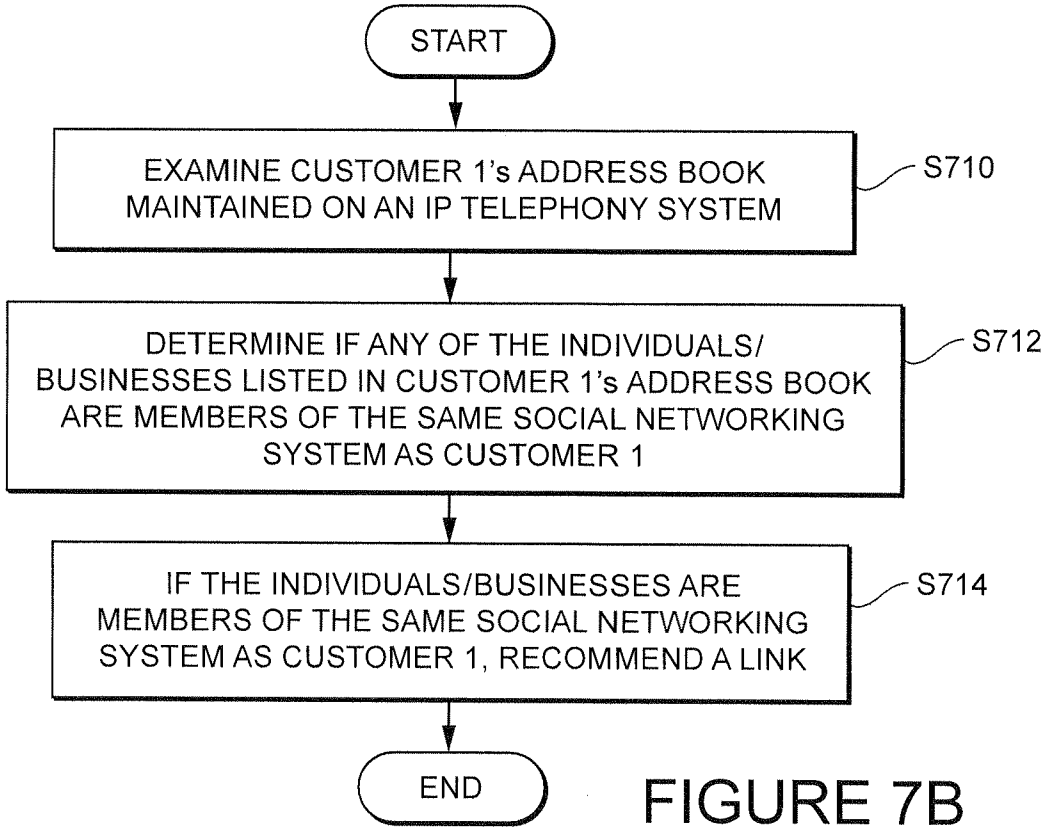

FIGURE 7B

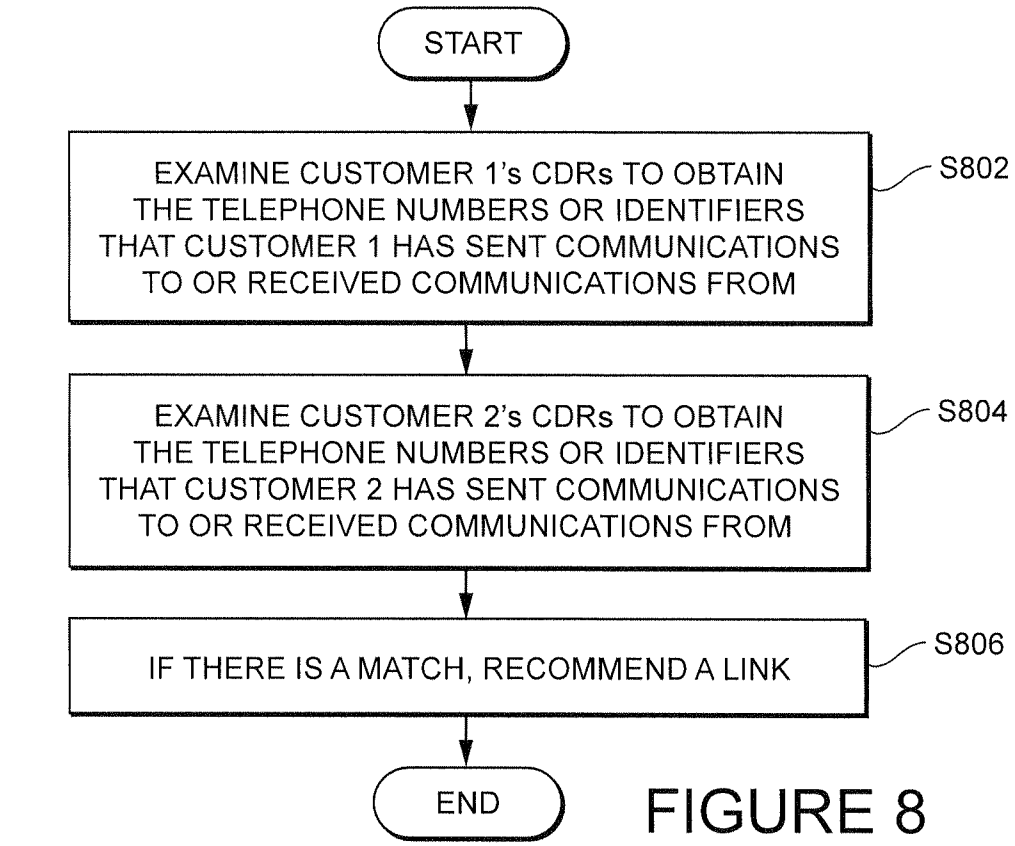

FIGURE 8

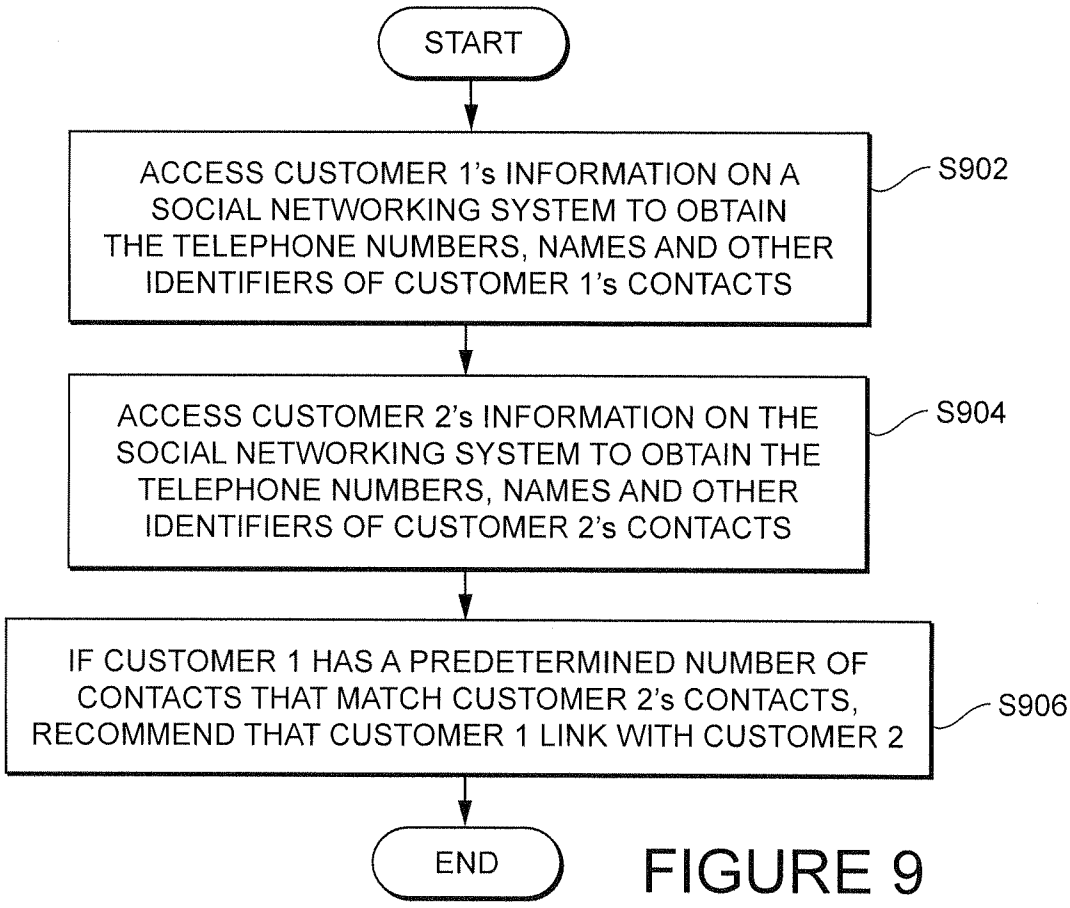

FIGURE 9

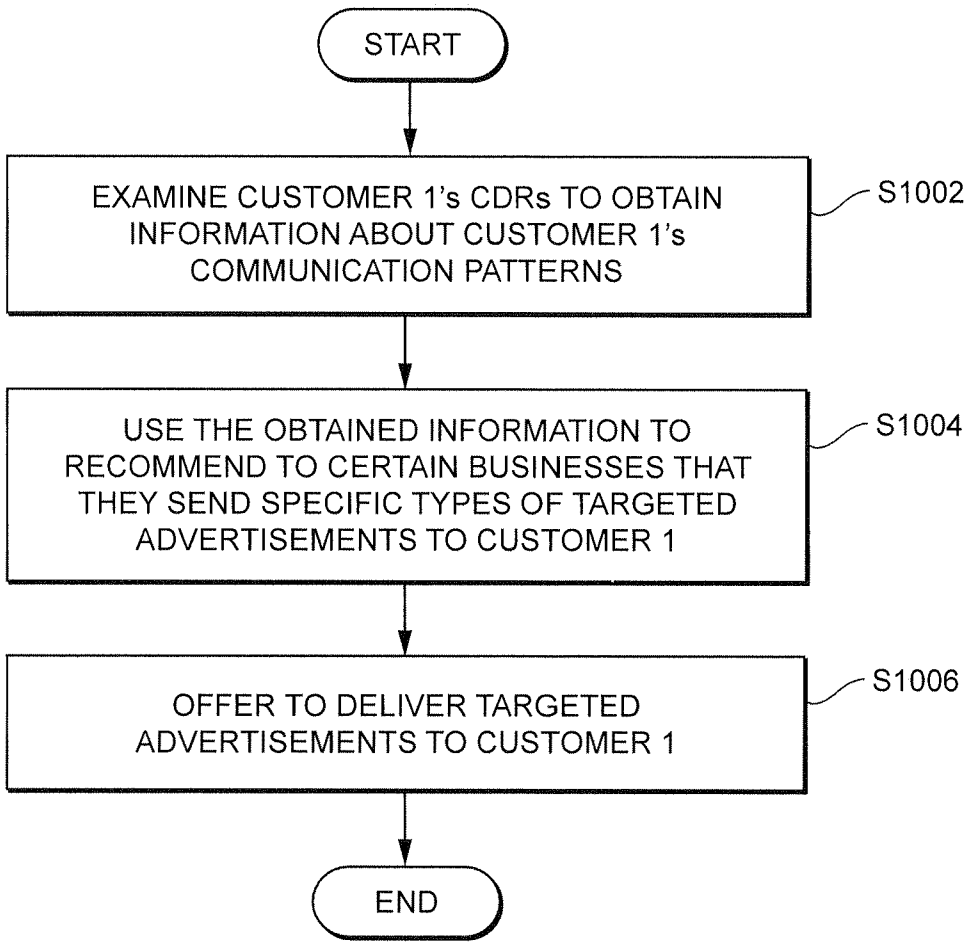
START
EXAMINE CUSTOMER 1's CDRs TO OBTAIN INFORMATION ABOUT CUSTOMER 1's COMMUNICATION PATTERNS
S1002
USE THE OBTAINED INFORMATION TO RECOMMEND TO CERTAIN BUSINESSES THAT THEY SEND SPECIFIC TYPES OF TARGETED ADVERTISEMENTS TO CUSTOMER 1
S1004
OFFER TO DELIVER TARGETED ADVERTISEMENTS TO CUSTOMER 1
S1006
END

FIGURE 10

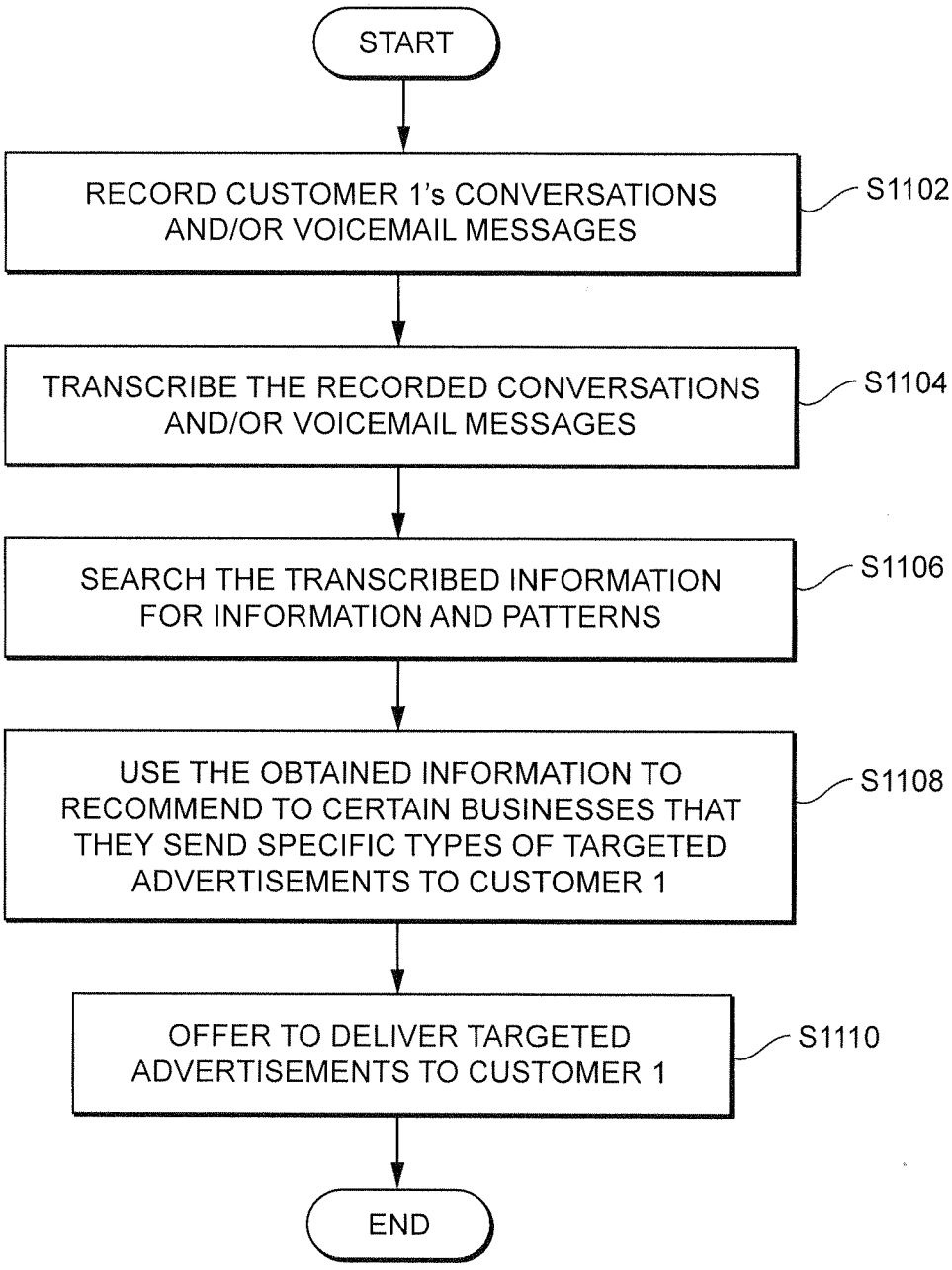
START
RECORD CUSTOMER 1's CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1102
TRANSCRIBE THE RECORDED CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1104
SEARCH THE TRANSCRIBED INFORMATION FOR INFORMATION AND PATTERNS
S1106
USE THE OBTAINED INFORMATION TO RECOMMEND TO CERTAIN BUSINESSES THAT THEY SEND SPECIFIC TYPES OF TARGETED ADVERTISEMENTS TO CUSTOMER 1
S1108
OFFER TO DELIVER TARGETED ADVERTISEMENTS TO CUSTOMER 1
S1110
END

FIGURE 11

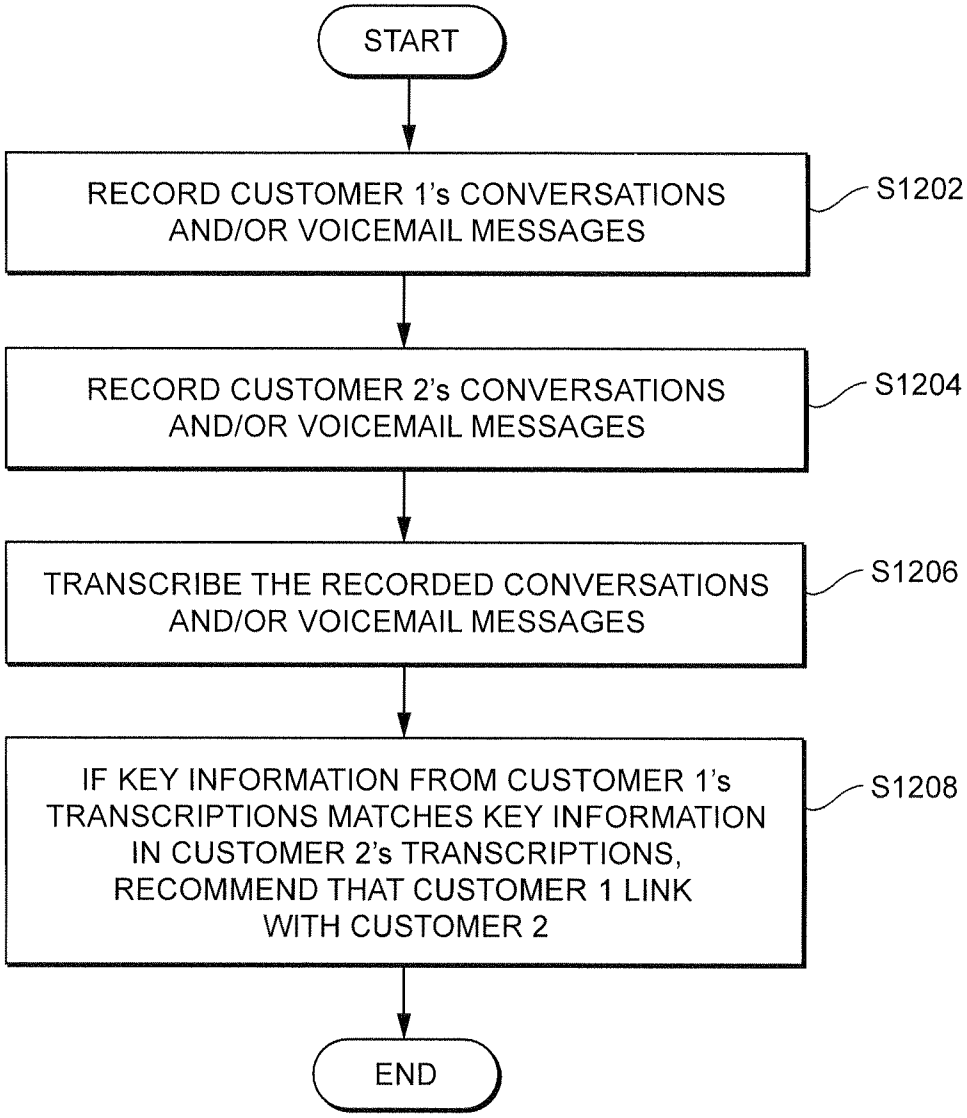
START
RECORD CUSTOMER 1's CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1202
RECORD CUSTOMER 2's CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1204
TRANSCRIBE THE RECORDED CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1206
IF KEY INFORMATION FROM CUSTOMER 1's TRANSCRIPTIONS MATCHES KEY INFORMATION IN CUSTOMER 2's TRANSCRIPTIONS, RECOMMEND THAT CUSTOMER 1 LINK WITH CUSTOMER 2
S1208
END

FIGURE 12

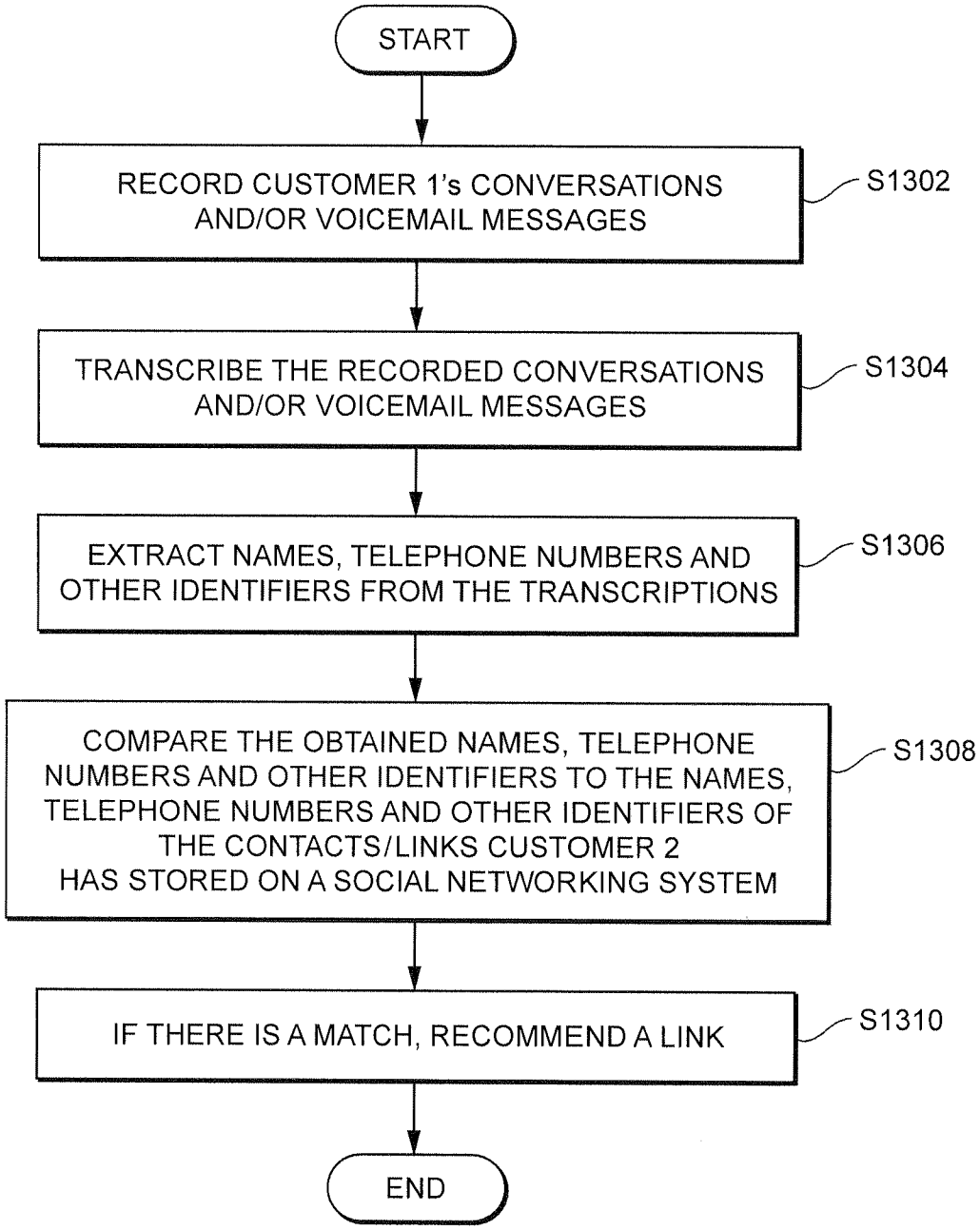
START
RECORD CUSTOMER 1's CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1302
TRANSCRIBE THE RECORDED CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1304
EXTRACT NAMES, TELEPHONE NUMBERS AND OTHER IDENTIFIERS FROM THE TRANSCRIPTIONS
S1306
COMPARE THE OBTAINED NAMES, TELEPHONE NUMBERS AND OTHER IDENTIFIERS TO THE NAMES, TELEPHONE NUMBERS AND OTHER IDENTIFIERS OF THE CONTACTS/LINKS CUSTOMER 2 HAS STORED ON A SOCIAL NETWORKING SYSTEM
S1308
IF THERE IS A MATCH, RECOMMEND A LINK
S1310
END

FIGURE 13

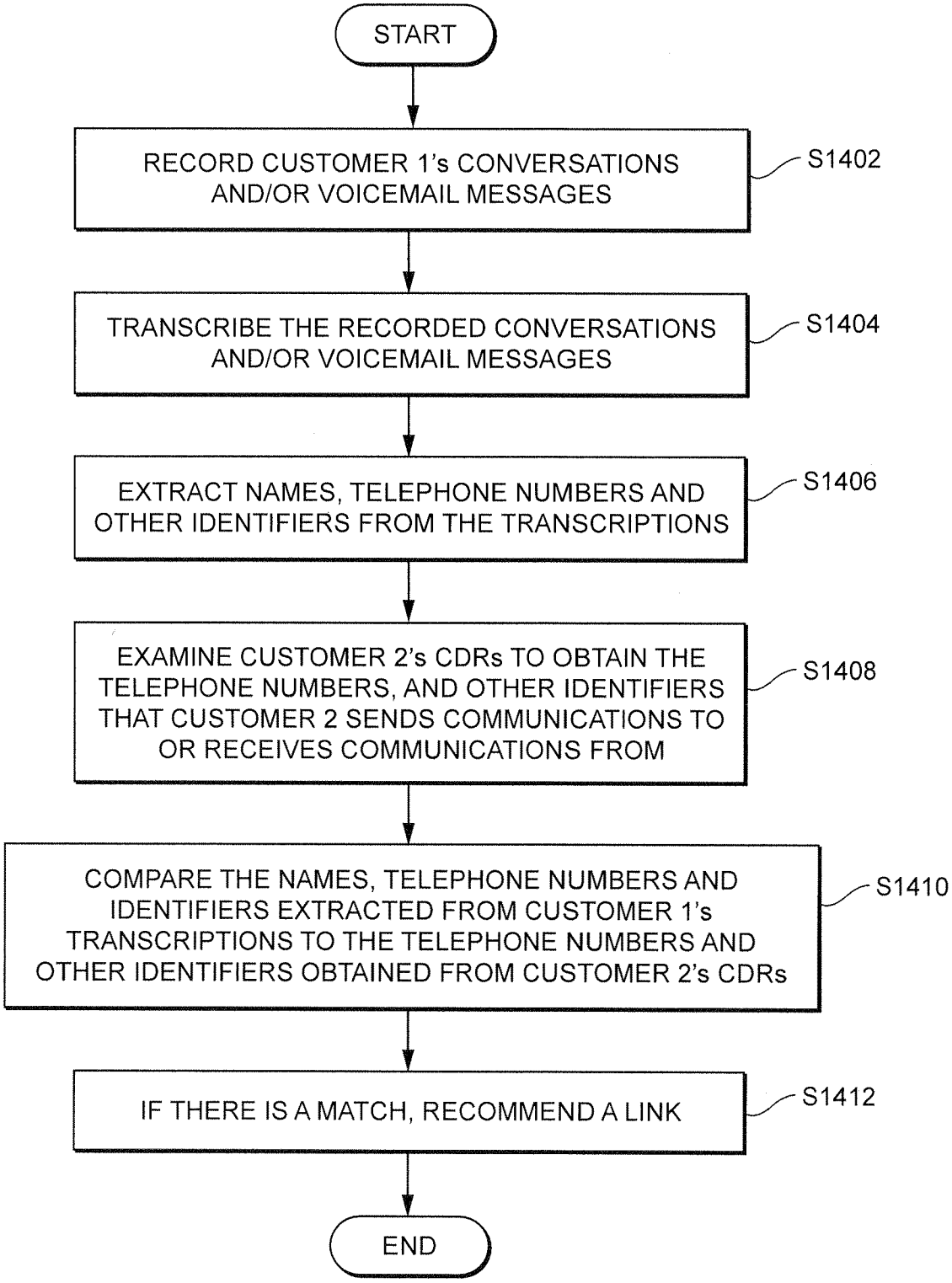
START
RECORD CUSTOMER 1's CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1402
TRANSCRIBE THE RECORDED CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1404
EXTRACT NAMES, TELEPHONE NUMBERS AND OTHER IDENTIFIERS FROM THE TRANSCRIPTIONS
S1406
EXAMINE CUSTOMER 2's CDRs TO OBTAIN THE TELEPHONE NUMBERS, AND OTHER IDENTIFIERS THAT CUSTOMER 2 SENDS COMMUNICATIONS TO OR RECEIVES COMMUNICATIONS FROM
S1408
COMPARE THE NAMES, TELEPHONE NUMBERS AND IDENTIFIERS EXTRACTED FROM CUSTOMER 1's TRANSCRIPTIONS TO THE TELEPHONE NUMBERS AND OTHER IDENTIFIERS OBTAINED FROM CUSTOMER 2's CDRs
S1410
IF THERE IS A MATCH, RECOMMEND A LINK
S1412
END

FIGURE 14

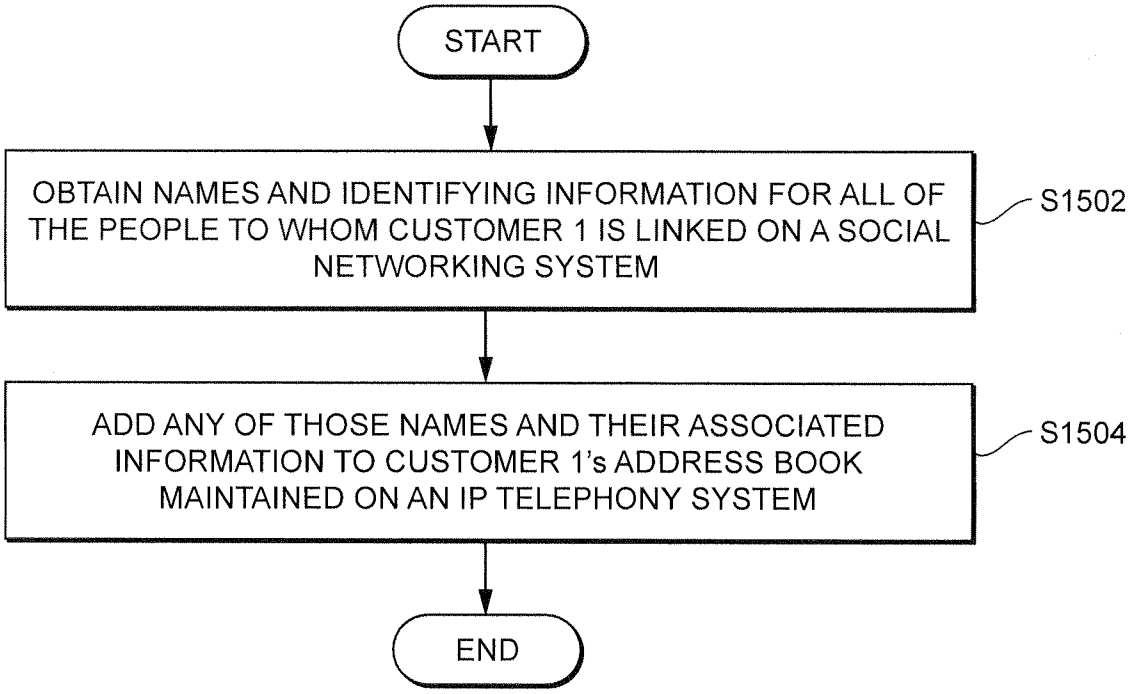

FIGURE 15

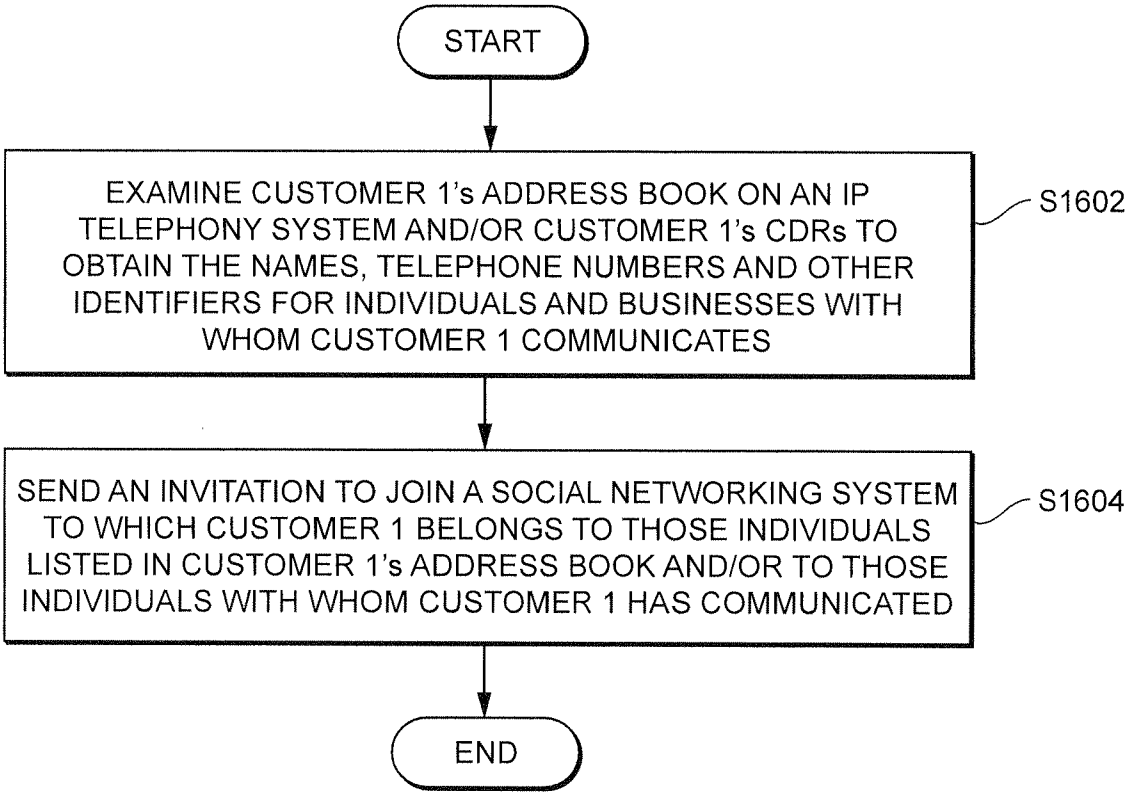

FIGURE 16

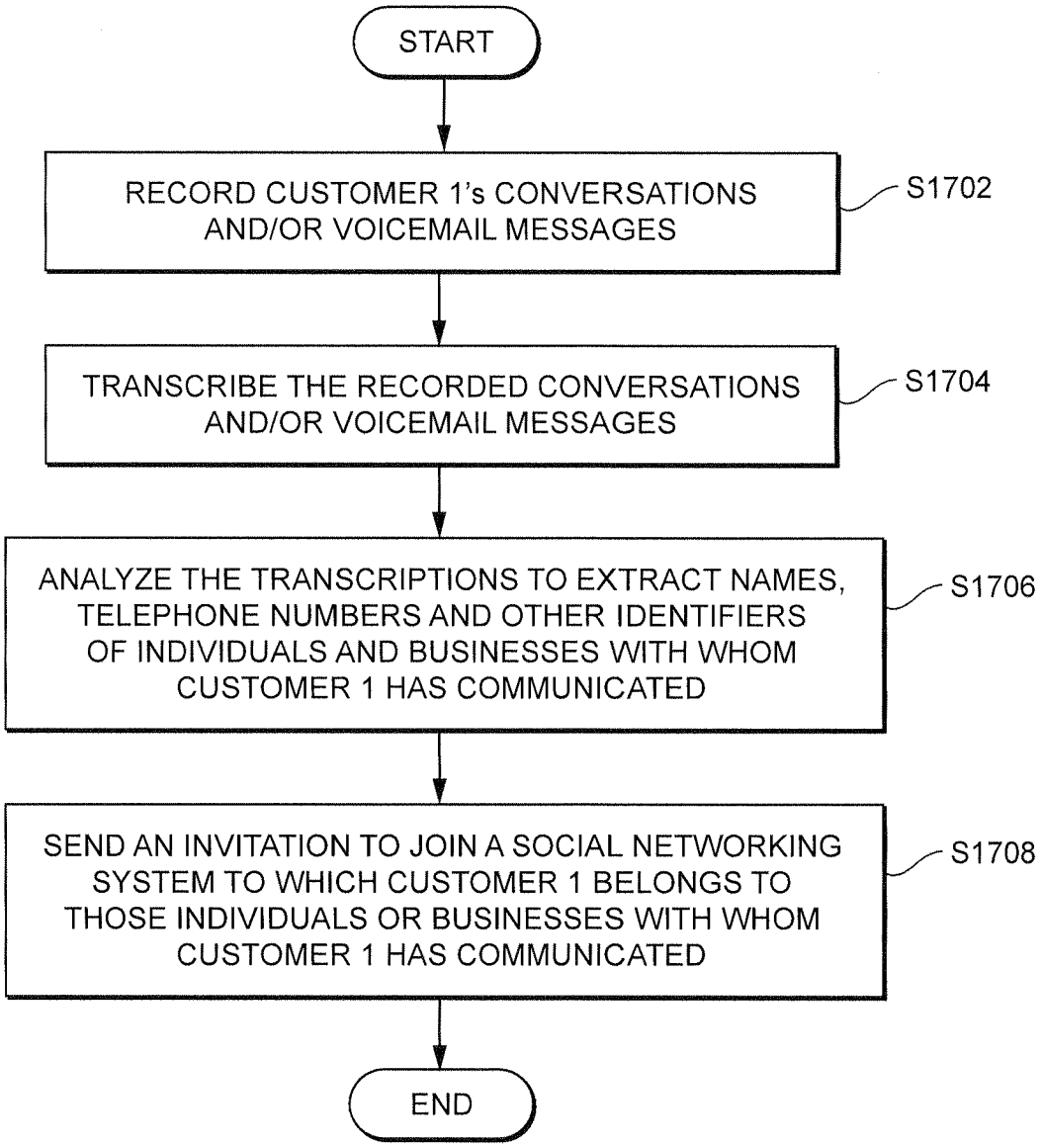
START
RECORD CUSTOMER 1's CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1702
TRANSCRIBE THE RECORDED CONVERSATIONS AND/OR VOICEMAIL MESSAGES
S1704
ANALYZE THE TRANSCRIPTIONS TO EXTRACT NAMES, TELEPHONE NUMBERS AND OTHER IDENTIFIERS OF INDIVIDUALS AND BUSINESSES WITH WHOM CUSTOMER 1 HAS COMMUNICATED
S1706
SEND AN INVITATION TO JOIN A SOCIAL NETWORKING SYSTEM TO WHICH CUSTOMER 1 BELONGS TO THOSE INDIVIDUALS OR BUSINESSES WITH WHOM CUSTOMER 1 HAS COMMUNICATED
S1708
END

FIGURE 17

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/052868

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04M3/22 H04M7/00 H04M3/487
ADD. H04L29/08 G06Q30/00

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)
H04M G06Q H04L

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2009/045899 A2 (XIAM TECHNOLOGIES LTD [US]; O'DONOGHUE HUGH [IE]; CORRIGAN SEAN [IE];) 9 April 2009 (2009-04-09) abstract paragraph [0002] paragraph [0008] paragraph [0012] paragraph [0014] paragraph [00147] - paragraph [00152] figures 1-4,17,18 -----	1-95, 107-123
X	US 2009/235335 A1 (MENDIOLA ANNA BELTRAN [US]) 17 September 2009 (2009-09-17) abstract figure 1 paragraph [0002] - paragraph [0032] paragraph [0040] paragraph [0045] - paragraph [0061] ----- -/--	1-95, 107-123

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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

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

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
5 January 2012	12/01/2012

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Molinari, Fausto

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Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/203391 A1 (MAZOR GAD [IL] ET AL) 13 August 2009 (2009-08-13) abstract figures 1,2b paragraph [0002] paragraph [0006] - paragraph [0012] paragraph [0024] - paragraph [0037] -----	96-106
X	US 2010/077027 A1 (CHITTURI SURESH [US] ET AL) 25 March 2010 (2010-03-25) abstract figure 1 paragraph [0003] - paragraph [0005] paragraph [0018] - paragraph [0026] paragraph [0041] -----	107-123
X	US 2005/086104 A1 (MCFADDEN JEFFREY A [US]) 21 April 2005 (2005-04-21) abstract figures 2,3 paragraph [0003] paragraph [0006] paragraph [0018] - paragraph [0027] -----	124-151
X	WO 2009/072741 A1 (SK TELECOM CO LTD [KR]; KIM MINKYOUNG [KR]; LEE JUNESUP [KR]) 11 June 2009 (2009-06-11) abstract paragraph [0001] - paragraph [0002] paragraph [0008] - paragraph [0012] paragraph [0041] - paragraph [0047] paragraph [0059] - paragraph [0063] paragraph [0079] - paragraph [0092] figures 6-8 -----	124-151

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/052868

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-95, 107-123

   Recommend social network link based on CDR information

   ---

2. claims: 96-106

   Update information in a user's contact list or address book

   ---

3. claims: 124-151

   Recommend advertisement message delivery based on CDR information

   ---

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2011/052868

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009045899 A2	09-04-2009	CA 2700015 A1	09-04-2009
		CN 101828167 A	08-09-2010
		EP 2195733 A2	16-06-2010
		JP 2011511968 A	14-04-2011
		KR 20100089841 A	12-08-2010
		RU 2010117390 A	10-11-2011
		US 2009163183 A1	25-06-2009
		WO 2009045899 A2	09-04-2009
US 2009235335 A1	17-09-2009	NONE	
US 2009203391 A1	13-08-2009	NONE	
US 2010077027 A1	25-03-2010	CA 2736755 A1	25-03-2010
		EP 2327199 A1	01-06-2011
		US 2010077027 A1	25-03-2010
		WO 2010033669 A1	25-03-2010
US 2005086104 A1	21-04-2005	EP 1673927 A2	28-06-2006
		JP 2007511116 A	26-04-2007
		KR 20070003761 A	05-01-2007
		US 2005086104 A1	21-04-2005
		WO 2005041540 A2	06-05-2005
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		EP 2218048 A1	18-08-2010
		KR 20090060084 A	11-06-2009
		US 2010324996 A1	23-12-2010
		WO 2009072741 A1	11-06-2009