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(54) **SHARED GROUPS ROSTERING SYSTEM**

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(51) **Int. Cl.**
G06F 15/16 (2006.01)

(52) **U.S. Cl.** **709/206**

(58) **Field of Classification Search** 709/206
See application file for complete search history.

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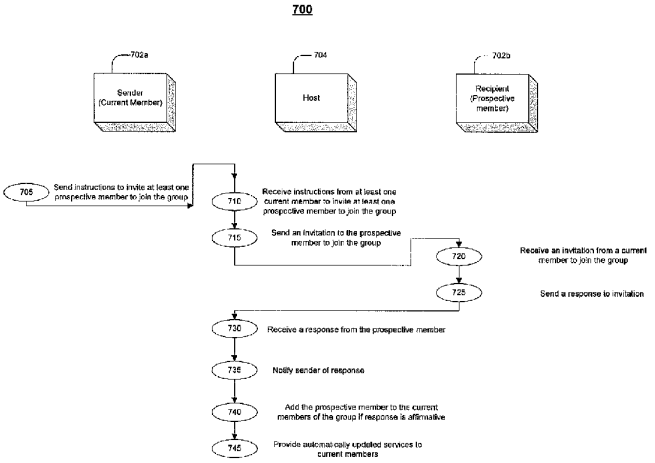
(57) **ABSTRACT**

Systems and techniques for sharing information among members of a group. Information about all current members of a group is stored. Instructions are received from at least one current member to invite at least one prospective member to join the group and the invitation to join the group is sent to the prospective member. In the event that an affirmative response is received, the prospective member is added to the current members of the group and automatically updated services are provided to current members of the group.

18 Claims, 8 Drawing Sheets



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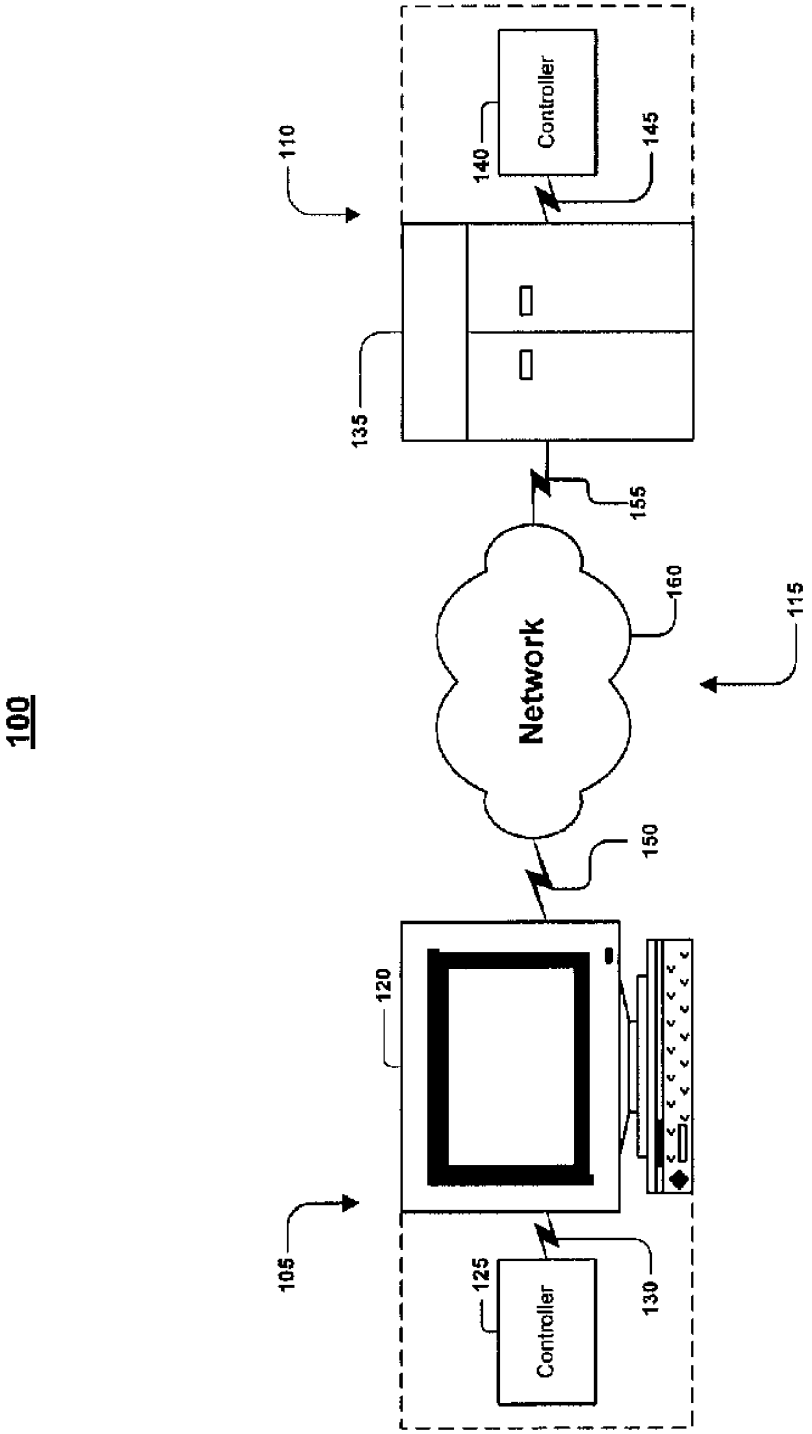
100
110
Controller
140
145
135
155
Network
160
115
150
120
105
125
Controller
130

Fig. 1

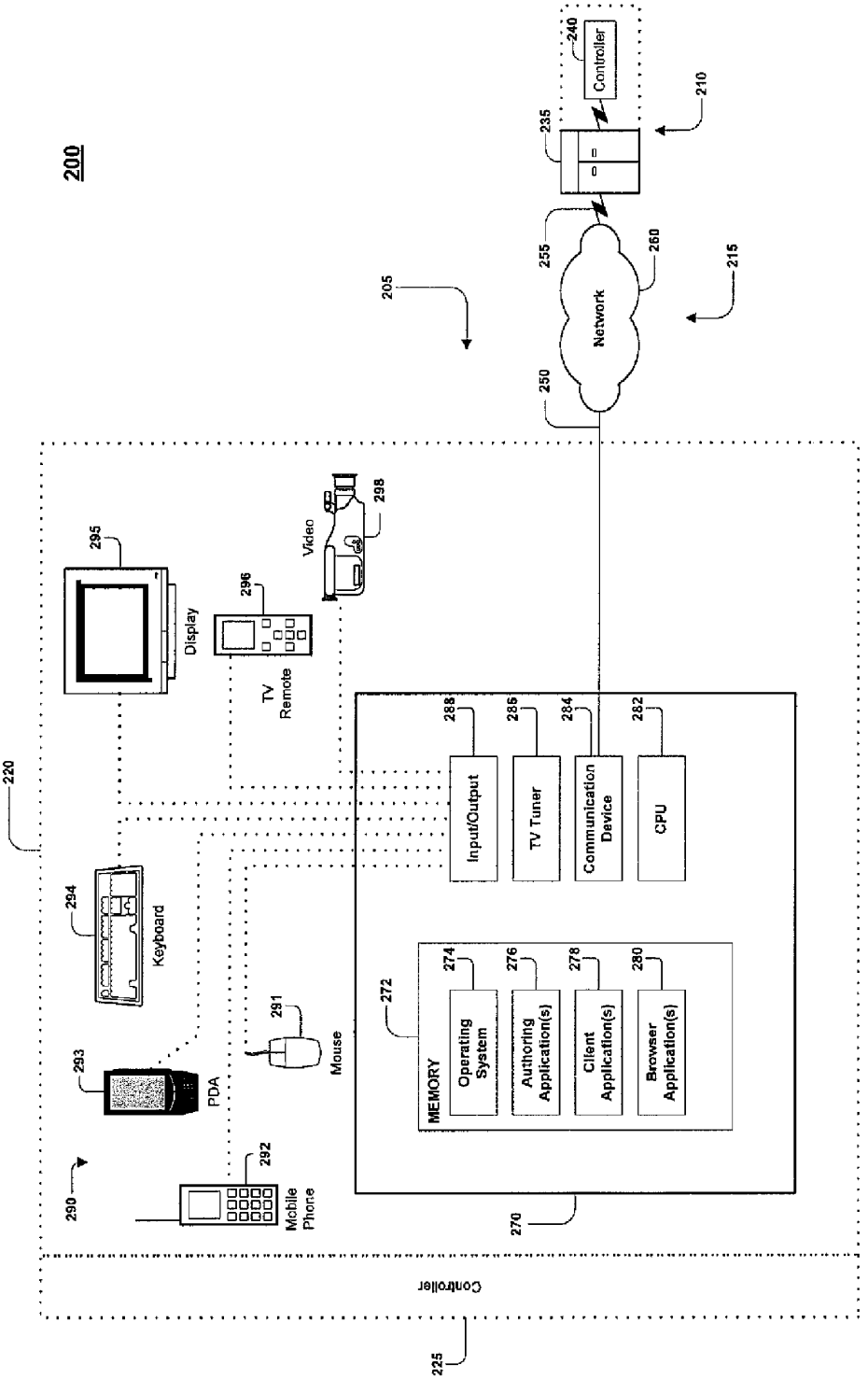
200
205
210
215
220
225
235
240
Controller
255
260
Network
250
295
Display
296
TV Remote
Video
298
294
Keyboard
293
PDA
291
Mouse
290
292
Mobile Phone
272
MEMORY
274
Operating System
276
Authoring Application(s)
278
Client Application(s)
280
Browser Application(s)
288
Input/Output
286
TV Tuner
284
Communication Device
282
CPU
270
Controller

Fig. 2

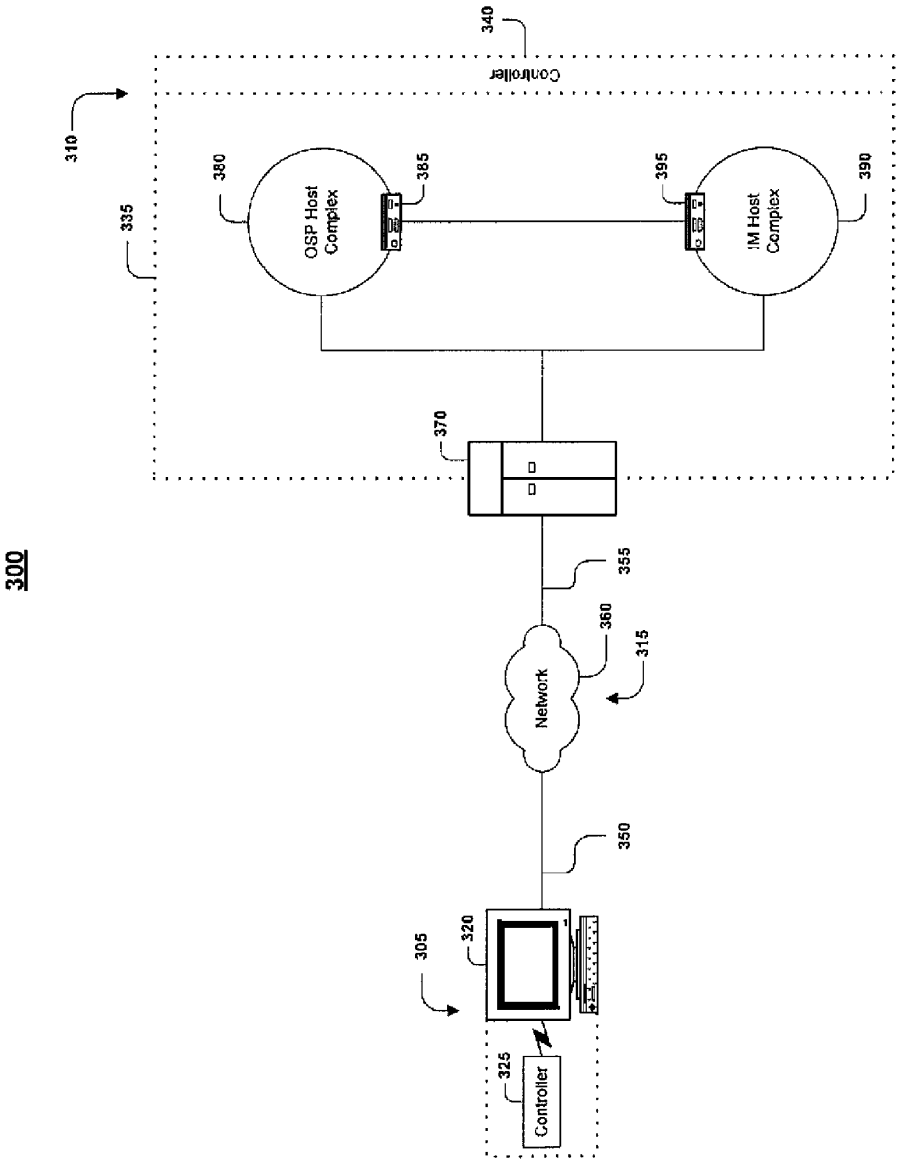
300
310
335
340
Controller
380
OSP Host Complex
385
395
IM Host Complex
390
370
355
360
Network
315
350
305
320
325
Controller

Fig. 3

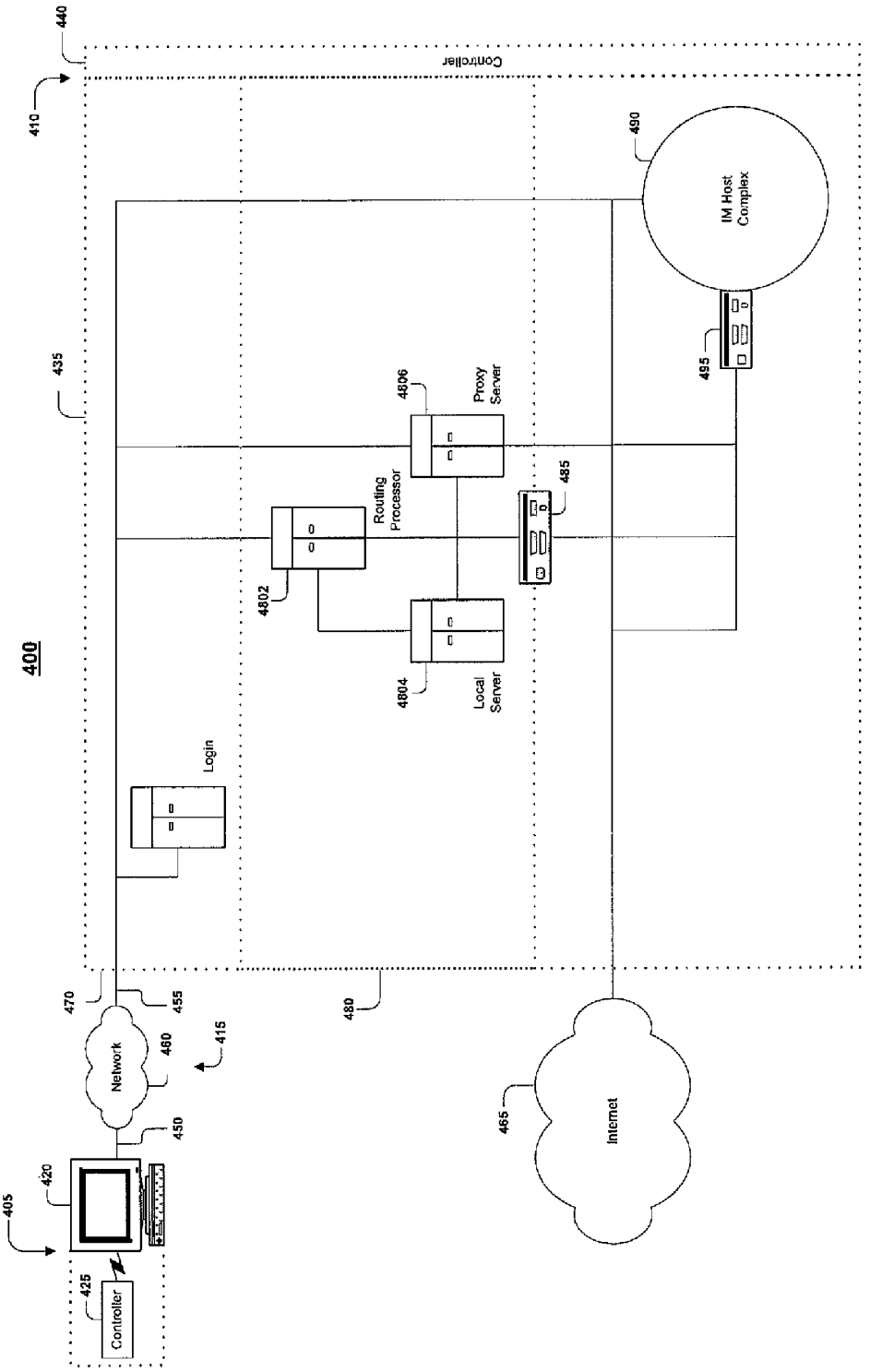
400
410
440
Controller
435
490
IM Host Complex
495
4806
Proxy Server
485
Routing Processor
4802
4804
Local Server
Login
470
455
480
Network
460
415
450
420
405
425
Controller
465
Internet

Fig. 4

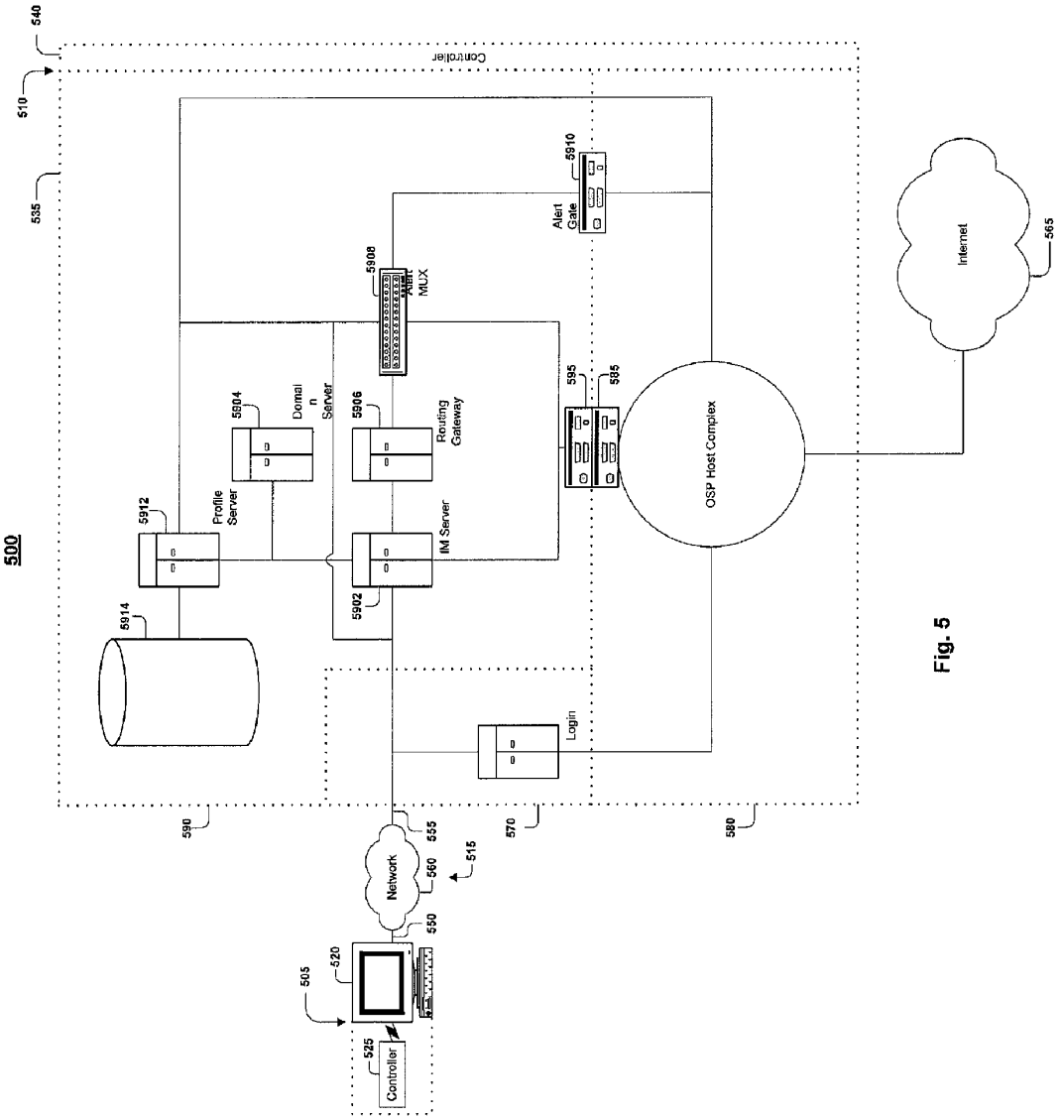
500
540
510
535
Controller
5910
Alert Gate
5908
MUX
5904
Domain Server
5906
Routing Gateway
595
585
OSP Host Complex
Internet
565
5912
Profile Server
IM Server
5902
5914
Login
590
555
570
580
Network
560
515
550
505
520
525
Controller

Fig. 5

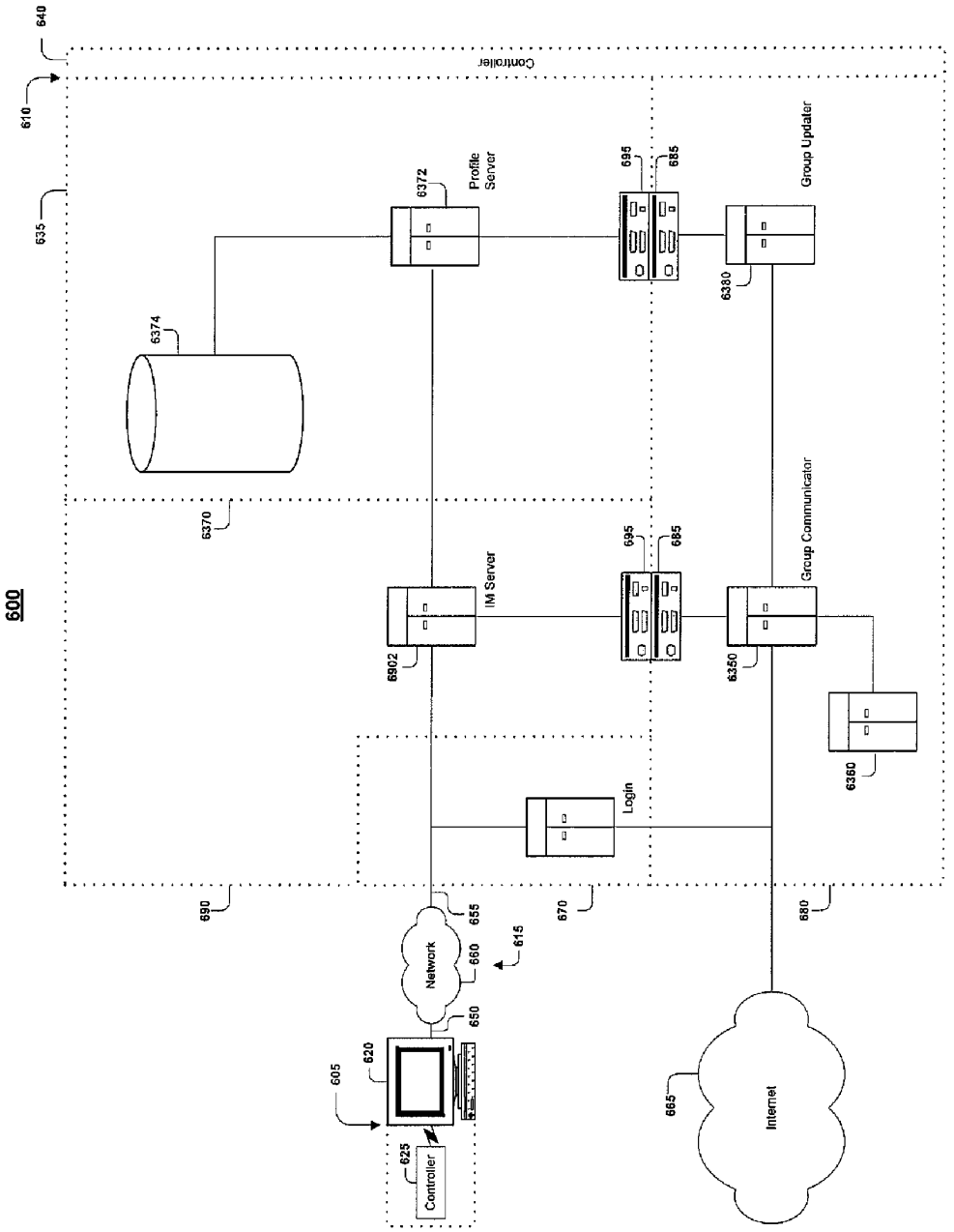
600
640
610
Controller
635
6372
Profile Server
695
685
Group Updater
6380
6374
6370
695
685
IM Server
Group Communicator
6902
6350
6360
Login
690
655
670
680
Network
660
615
650
620
605
625
Controller
665
Internet

Fig. 6

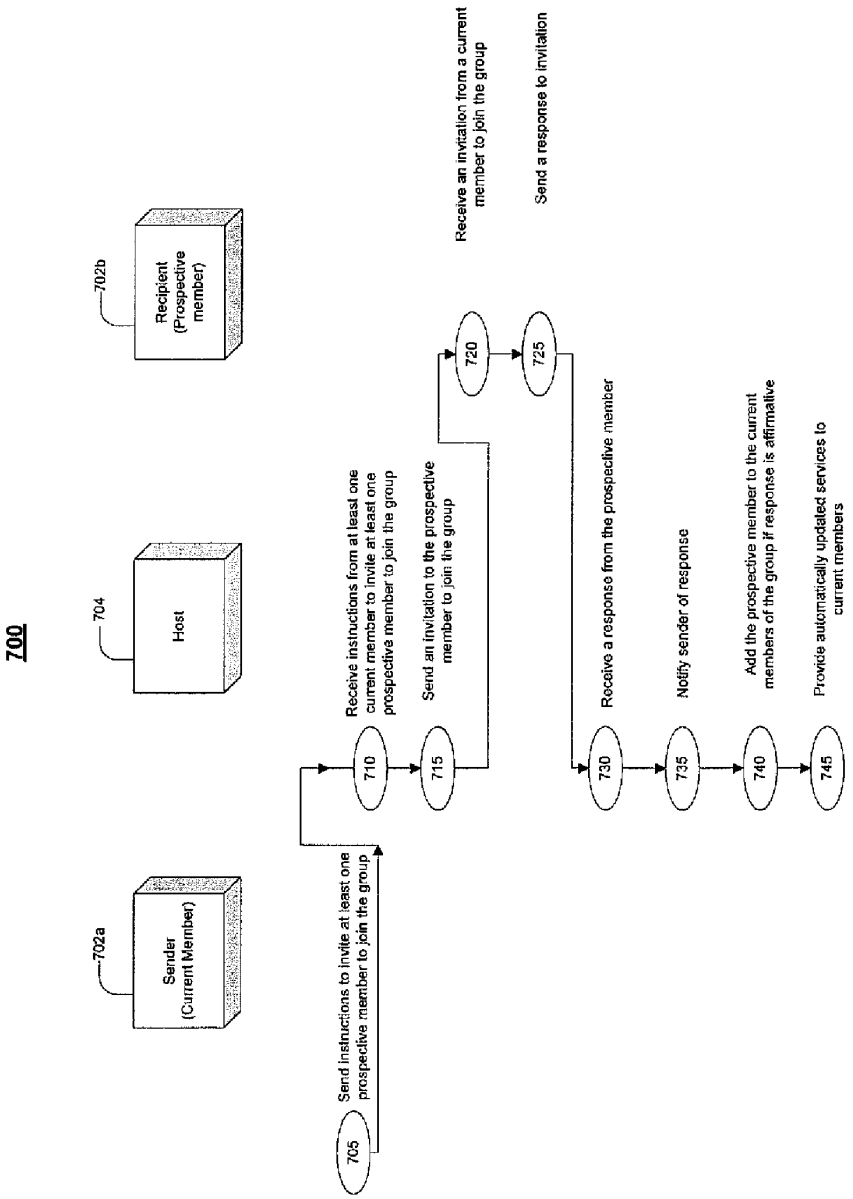
700
702a
Sender (Current Member)
704
Host
702b
Recipient (Prospective member)
705
Send instructions to invite at least one prospective member to join the group
710
Receive instructions from at least one current member to invite at least one prospective member to join the group
715
Send an invitation to the prospective member to join the group
720
Receive an invitation from a current member to join the group
725
Send a response to invitation
730
Receive a response from the prospective member
735
Notify sender of response
740
Add the prospective member to the current members of the group if response is affirmative
745
Provide automatically updated services to current members

Fig. 7

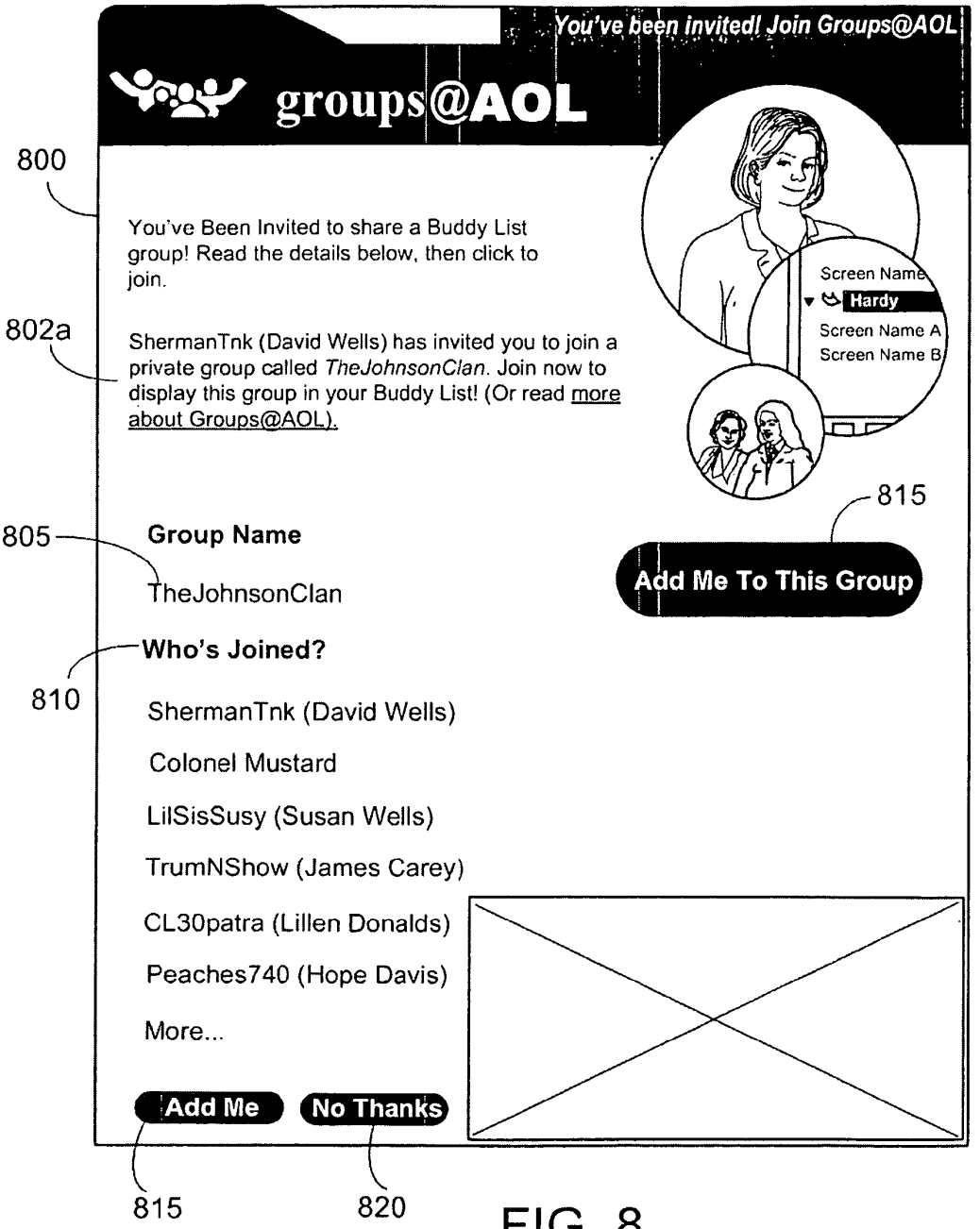
You've been invited! Join Groups@AOL
groups@AOL
800
You've Been Invited to share a Buddy List group! Read the details below, then click to join.
802a
ShermanTnk (David Wells) has invited you to join a private group called TheJohnsonClan. Join now to display this group in your Buddy List! (Or read more about Groups@AOL).
Screen Name
Hardy
Screen Name A
Screen Name B
815
805
Group Name
TheJohnsonClan
Add Me To This Group
Who's Joined?
810
ShermanTnk (David Wells)
Colonel Mustard
LilSisSusy (Susan Wells)
TrumNShow (James Carey)
CL30patra (Lillen Donalds)
Peaches740 (Hope Davis)
More...
Add Me
No Thanks
815
820

FIG. 8

SHARED GROUPS ROSTERING SYSTEM

CROSS REFERENCE TO RELATED APPLICATION

This application is a divisional of U.S. application Ser. No. 09/810,625, filed Mar. 19, 2001, now pending, which is claims the benefit of U.S. Provisional Application No. 60/189,973, filed Mar. 17, 2000, all of which are incorporated by reference.

TECHNICAL FIELD

The present invention relates generally to transferring data between subscribers of a communications system and more particularly to sharing information among members of a group.

BACKGROUND

Online service providers are constantly offering new services and upgrading existing services to enhance their subscribers' online experience. Subscribers have on-demand access to news, weather, financial, sports, and entertainment services as well as the ability to transmit electronic messages and to participate in online discussion groups. For example, subscribers of online service providers such as America Online or CompuServe may view and retrieve information on a wide variety of topics from servers located throughout the world. A server may be maintained by the service provider or by a third party provider who makes information and services available through the worldwide network of computers that make up the online service.

America Online has provided subscribers with the ability to send and receive instant messages. Instant messages are private online conversations between two or more people who have subscribed to the instant messaging service and have installed the necessary software. Because such online conversations virtually take place in real time, instant messaging can provide immediate access to desired information. Instant messaging is becoming a preferred means of communicating among online subscribers.

Subscribers may at times encounter more complexity than they would like, which may lead to a frustrating experience online. Moreover, some subscribers may at times feel isolated in the online community. This is especially likely to occur for inexperienced subscribers. For example, it may be difficult to share information among members of a group such as, for example, a family. Tasks such as sharing an instant message buddy list, updating a shared address book, or updating a shared calendar may be time consuming, tedious, or intimidating to some subscribers.

SUMMARY

In one general aspect, information is shared among members of a group by storing information about all current members of the group, receiving instructions from a group member inviting a prospective member to join the group, sending an invitation to the prospective member, receiving a response from the prospective member, adding the prospective member to the group when the response is positive, and providing automatically updated services to current group members.

Implementations may include sending the invitation by an e-mail message, an instant message, or in an on-line chat room. Implementations also may include receiving the response by an e-mail message, an instant message, or in an on-line chat room. The automatically updated services may include, for example, providing a list of current group members, sharing information in an address book, sharing information in a calendar, providing an online forum for current group members to chat with other group members, sending instant messages from a current group member to other current group members, sharing data files among current group members, sharing a buddy list among current group members, and offering new services to current group members. The shared information may be updated based upon information entered by the current group members. In the shared address book, the information shared may include, for example, a name, an address (either personal or business), an email address, an instant message user identifier, a screen name, and a telephone number. In the shared calendar, the shared information may include, for example, a date, an appointment, an anniversary, a birthday, a holiday, and an invitation for other current group members to attend an event. For the shared data files, implementations may include sharing, for example, digital images such as photographs, text files, or multimedia files.

In another general aspect, a communication system shares information among members of a group through a group administrator which processes information about current group members, a group communicator that delivers and exchanges information with both current and prospective group members, and a group information updater that provides automatically updated services to current group members.

Implementations may include, for example, a group administrator that has a group member profile server to update information about the group members and a database to store data about the group members. Implementations also may include, for example, a group communicator that has an instant message host complex and a login server to communicate with a client system and determine whether the client is authorized to access the instant message host complex. The instant message host complex may include an instant message server to send and receive data, a domain server to provide supporting functions, and a routing gateway.

A group communicator also may have an OSP host complex and login server to communicate with a client system and determine whether the client is authorized to access the OSP host complex. The OSP host complex may include an OSP server to send and receive data.

The group information updater may have a user interface to communicate and exchange data with group members, receive updated information from the user interface, and automatically provide updated services to group members. The user interface may reside, for example, on an instant message complex, an OSP host complex, or on the Internet.

In another general aspect, a graphical user interface (UI) may be used to invite prospective members to join the group. The UI may include an invitation message, the group name, a list of current group members, and a tool that allows the prospective member to respond to the invitation.

These and other general aspects may be implemented by an apparatus and/or by a computer program stored on a computer readable medium. The computer readable medium may comprise a disc, a client device, a host device, and/or a propagated signal.

Other features and advantages will be apparent from the following description, including the drawings, and from the claims.

DESCRIPTION OF DRAWINGS

FIG. **1** is a block diagram of a communications system.

FIGS. **2-5** are expansions of the block diagram of FIG. **1**.

FIG. **6** is a block diagram of a communications system.

FIG. **7** is a diagram of a communications method implemented by the system of FIG. **6**.

FIG. **8** is a screen shot of a user interface of the system of FIG. **6**.

DETAILED DESCRIPTION

For illustrative purposes, FIGS. **1-5** describe a communications system for implementing techniques for transferring electronic data. For brevity, several elements in the figures described below are represented as monolithic entities. However, as would be understood by one skilled in the art, these elements each may include numerous interconnected computers and components designed to perform a set of specified operations and/or dedicated to a particular geographical region.

Referring to FIG. **1**, a communications system **100** is capable of delivering and exchanging data between a client system **105** and a host system **110** through a communications link **115**. The client system **105** typically includes one or more client devices **120** and/or client controllers **125**. For example, the client system **105** may include one or more general-purpose computers (e.g., personal computers), one or more special-purpose computers (e.g., devices specifically programmed to communicate with each other and/or the host system **110**), or a combination of one or more general-purpose computers and one or more special-purpose computers. The client system **105** may be arranged to operate within or in concert with one or more other systems, such as for example, one or more LANs ("Local Area Networks") and/or one or more WANs ("Wide Area Networks").

In general, the client device **120** is capable of executing instructions under the command of a client controller **125**. The client device **120** is connected to the client controller **125** by a wired or wireless data pathway **130** capable of delivering data.

The client device **120** and the client controller **125** each typically includes one or more hardware components and/or software components. An example of a client device **120** is a general-purpose computer (e.g., a personal computer) capable of responding to and executing instructions in a defined manner. Other examples include a special-purpose computer, a workstation, a server, a device, a component, other equipment, or some combination of these elements that is capable of responding to and executing instructions. An example of a client controller **125** is a software application loaded on the client device **120** for commanding and directing communications enabled by the client device **120**. Other examples include a program, a piece of code, an instruction, a device, a computer, a computer system, or a combination of these elements that is capable of independently or collectively instructing the client device **120** to interact and operate as described herein. The client controller **125** may be embodied permanently or temporarily in any type of machine, component, equipment, storage medium, or propagated signal capable of providing instructions to the client device **120**.

The communications link **115** typically includes a delivery network **160** making a direct or indirect communication between the client system **105** and the host system **110**, irrespective of physical separation. Examples of a delivery network **160** include the Internet, the World Wide Web, WANs, LANs, analog or digital wired and wireless telephone networks (e.g. PSTN, ISDN, or xDSL), radio, television, cable, satellite, and/or any other delivery mechanism for carrying data. The communications link **115** may include communication pathways **150**, **155** that enable communications through the one or more delivery networks **160** described above. Each of the communication pathways **150**, **155** may include, for example, a wired, wireless, cable or satellite communication pathway.

The host system **110** includes a host device **135** capable of executing instructions under the command and direction of a host controller **140**. The host device **135** is connected to the host controller **140** by a wired or wireless data pathway **145** capable of carrying and delivering data.

The host system **110** typically includes one or more host devices **135** and/or host controllers **140**. For example, the host system **110** may include one or more general-purpose computers (e.g., personal computers), one or more special-purpose computers (e.g., devices specifically programmed to communicate with each other and/or the client system **105**), or a combination of one or more general-purpose computers and one or more special-purpose computers, each of which may include a processing device, memory storage system, and/or non-transitory computer-readable storage medium, configured to process and/or store computer instructions. The host system **110** may be arranged to operate within or in concert with one or more other systems, such as, for example, one or more LANs ("Local Area Networks") and/or one or more WANs ("Wide Area Networks").

The host device **135** and the host controller **140** each typically includes one or more hardware components and/or software components. An example of a host device **135** is a general-purpose computer (e.g., a personal computer) capable of responding to and executing instructions in a defined manner. Other examples include a special-purpose computer, a workstation, a server, a device, a component, other equipment, or some combination of these elements that is capable of responding to and executing instructions. An example of host controller **140** is a software application loaded on the host device **135** for commanding and directing communications enabled by the host device **135**. Other examples include a program, a piece of code, an instruction, a device, a computer, a computer system, or a combination of these elements that is capable of independently or collectively instructing the host device **135** to interact and operate as described herein. The host controller **140** may be embodied permanently or temporarily in any type of machine, component, equipment, storage medium, or propagated signal capable of providing instructions to the host device **135**.

FIG. **2** illustrates a communication system **200** including a client system **205** communicating with a host system **210** through a communications link **215**. Client system **205** typically includes one or more client devices **220** and one or more client controllers **225** for controlling the client devices **220**. Host system **210** typically includes one or more host devices **235** and one or more host controllers **240** for controlling the host devices **235**. The communications link **215** may include communication pathways **250**, **255** enabling communications through the one or more delivery networks **260**.

Examples of each element within the communication system of FIG. **2** are broadly described above with respect to FIG. **1**. In particular, the host system **210** and communications link **215** typically have attributes comparable to those described with respect to host system **110** and communications link **115** of FIG. **1**. Likewise, the client system **205** of FIG. **2** typically has attributes comparable to the client system **105** of FIG. **1** and illustrates one possible implementation of that system.

The client device **220** typically includes a general purpose computer **270** having an internal or external storage **272** for storing data and programs such as an operating system **274** (e.g., DOS, Windows™, Windows 95™, Windows 98™,

Windows 2000™, Windows NT™, OS/2, or Linux) and one or more application programs. Examples of application programs include authoring applications **276** (e.g., word processing, database programs, spreadsheet programs, or graphics programs) capable of generating documents or other electronic content; client applications **278** (e.g., AOL client, CompuServe client, AIM client, AOL TV client, or an ISP client) capable of communicating with other computer users, accessing various computer resources, and viewing, creating, or otherwise manipulating electronic content; and browser applications **280** (e.g., Netscape's Navigator or Microsoft's Internet Explorer) capable of rendering standard Internet content.

The general-purpose computer **270** also includes a central processing unit **282** (CPU) for executing instructions in response to commands from the client controller **225**. In one implementation, the client controller **225** includes one or more of the application programs installed on the internal or external storage **272** of the general-purpose computer **270**. In another implementation, the client controller **225** includes application programs externally stored in and performed by one or more device(s) external to the general-purpose computer **270**.

The general-purpose computer typically includes a communication device **284** for sending and receiving data. One example of the communication device **284** is a modem. Other examples include a transceiver, a set-top box, a communication card, a satellite dish, an antenna, or another network adapter capable of transmitting and receiving data over the communications link **215** through a wired or wireless data pathway **250**. The general-purpose computer **270** also may include a TV ("television") tuner **286** for receiving television programming in the form of broadcast, satellite, and/or cable TV signals. As a result, the client device **220** can selectively and/or simultaneously display network content received by communications device **284** and television programming content received by the TV tuner **286**.

The general-purpose computer **270** typically will include an input/output interface **288** for wired or wireless connection to various peripheral devices **290**. Examples of peripheral devices **290** include, but are not limited to, a mouse **291**, a mobile phone **292**, a personal digital assistant **293** (PDA), a keyboard **294**, a display monitor **295** with or without a touch screen input, a TV remote control **296** for receiving information from and rendering information to subscribers, and a video input device **298**.

Although FIG. **2** illustrates devices such as a mobile telephone **292**, a PDA **293**, and a TV remote control **296** as being peripheral with respect to the general-purpose computer **270**, in another implementation, such devices may themselves include the functionality of the general-purpose computer **270** and operate as the client device **220**. For example, the mobile phone **292** or the PDA **293** may include computing and networking capabilities and function as a client device **220** by accessing the delivery network **260** and communicating with the host system **210**. Furthermore, the client system **205** may include one, some or all of the components and devices described above.

Referring to FIG. **3**, a communications system **300** is capable of delivering and exchanging information between a client system **305** and a host system **310** through a communication link **315**. Client system **305** typically includes one or more client devices **320** and one or more client controllers **325** for controlling the client devices **320**. Host system **310** typically includes one or more host devices **335** and one or more host controllers **340** for controlling the host devices **335**. The communications link **315** may include communication pathways **350**, **355** enabling communications through the one or more delivery networks **360**.

Examples of each element within the communication system of FIG. **3** are broadly described above with respect to FIGS. **1** and **2**. In particular, the client system **305** and the communications link **315** typically have attributes comparable to those described with respect to client systems **105** and **205** and communications links **115** and **215** of FIGS. **1** and **2**. Likewise, the host system **310** of FIG. **3** may have attributes comparable to the host systems **110** and **210** shown in FIGS. **1** and **2**, respectively and illustrates one possible implementation of those systems.

The host system **310** includes a host device **335** and a host controller **340**. In general, the host controller **340** is capable of transmitting instructions to any or all of the elements of the host device **335**. For example, in one implementation, the host controller **340** includes one or more software applications loaded on the host device **335**. However, in other implementations, as described above, the host controller **340** may include any of several other programs, machines, and devices operating independently or collectively to control the host device **335**.

The host device **335** includes a login server **370** for enabling access by subscribers and routing communications between the client system **305** and other elements of the host device **335**. The host device **335** also includes various host complexes such as the depicted OSP ("Online Service Provider") host complex **380** and IM ("Instant Messaging") host complex **390**. To enable access to these host complexes by subscribers, the client system **305** includes communication software, such as for example, an OSP client application and an IM client application. The OSP and IM communication software applications are designed to facilitate the subscriber's interactions with the respective services and, in particular, may provide access to all the services available within the respective host complexes.

Typically, the OSP host complex **380** supports different services, such as email, discussion groups, chat, news services, and Internet access. The OSP host complex **380** is generally designed with an architecture that enables the machines within the OSP host complex **380** to communicate with each other and employs certain protocols (i.e., standards, formats, conventions, rules, and structures) to transfer data. The OSP host complex **380** ordinarily employs one or more OSP protocols and custom dialing engines to enable access by selected client applications. The OSP host complex **380** may define one or more specific protocols for each service based on a common, underlying proprietary protocol.

In general, the IM host complex **390** is independent of the OSP host complex **380** and supports instant messaging services irrespective of a subscriber's network or Internet access. Thus, the IM host complex **390** allows subscribers to send and receive instant messages, regardless of whether they have access to any particular ISP. The IM host complex **390** may support associated services, such as administrative matters, advertising, directory services, chat, and interest groups related to the instant messaging. The IM host complex **390** has an architecture that enables all of the machines within the IM host complex to communicate with each other. To transfer data, the IM host complex **390** employs one or more standard or exclusive IM protocols.

The host device **335** may include one or more gateways that connect and therefore link complexes, such as the OSP host complex gateway **385** and the IM host complex gateway **395**. The OSP host complex gateway **385** and the IM host complex **395** gateway may directly or indirectly link the OSP host complex **380** with the IM host complex **390** through a wired

or wireless pathway. Ordinarily, when used to facilitate a link between complexes, the OSP host complex gateway **385** and the IM host complex gateway **395** are privy to information regarding the protocol type anticipated by a destination complex, which enables any necessary protocol conversion to be performed incident to the transfer of data from one complex to another. For instance, the OSP host complex **380** and IM host complex **390** generally use different protocols such that transferring data between the complexes requires protocol conversion by or at the request of the OSP host complex gateway **385** and/or the IM host complex gateway **395**.

Referring to FIG. **4**, a communications system **400** is capable of delivering and exchanging information between a client system **405** and a host system **410** through a communication link **415**. Client system **405** typically includes one or more client devices **420** and one or more client controllers **425** for controlling the client devices **420**. Host system **410** typically includes one or more host devices **435** and one or more host controllers **440** for controlling the host devices **435**. The communications link **415** may include communication pathways **450**, **455** enabling communications through the one or more delivery networks **460**. As shown, the client system **405** may access the Internet **465** through the host system **410**.

Examples of each element within the communication system of FIG. **4** are broadly described above with respect to FIGS. **1-3**. In particular, the client system **405** and the communications link **415** typically have attributes comparable to those described with respect to client systems **105**, **205**, and **305** and communications links **115**, **215**, and **315** of FIGS. **1-3**. Likewise, the host system **410** of FIG. **4** may have attributes comparable to the host systems **110**, **210**, and **310** and illustrates one possible implementation of those systems. FIG. **4** describes an aspect of the host system **410**, focusing primarily on one particular implementation of OSP host complex **480**. In general, for purposes of communicating with an OSP host complex **480**, the delivery network **460** is a telephone network.

The client system **405** includes a client device **420** and a client controller **425**. The client controller **425** is capable of establishing a connection to the host system **410**, including the OSP host complex **480**, the IM host complex **490** and/or the Internet **465**. In one implementation, the client controller **425** includes an OSP application for communicating with servers in the OSP host complex **480** using exclusive OSP protocols. The client controller **425** also may include applications, such as an IM client application, and/or an Internet browser application, for communicating with the IM host complex **490** and the Internet **465**.

The host system **410** includes a host device **435** and a host controller **440**. The host controller **440** is capable of transmitting instructions to any or all of the elements of the host device **435**. For example, in one implementation, the host controller **440** includes one or more software applications loaded on one or more elements of the host device **435**. However, in other implementations, as described above, the host controller **440** may include any of several other programs, machines, and devices operating independently or collectively to control the host device **435**.

The host system **410** includes a login server **470** capable of enabling communications with and authorizing access by client systems **405** to various elements of the host system **410**, including an OSP host complex **480** and an M host complex **490**. The login server **470** may implement one or more authorization procedures to enable simultaneous access to the OSP host complex **480** and the IM host complex **490**. The OSP host complex **480** and the M host complex **490** are connected through one or more OSP host complex gateways **485** and one or more IM host complex gateways **495**. Each OSP host complex gateway **485** and IM host complex gateway **495** may perform any protocol conversions necessary to enable communication between the OSP host complex **480**, the IM host complex **490**, and the Internet **465**.

The OSP host complex **480** supports a set of services from one or more servers located internal to and external from the OSP host complex **480**. Servers external to the OSP host complex **480** may be viewed as existing on the Internet **465**. Servers internal to the OSP complex **480** may be arranged in one or more configurations. For example, servers may be arranged in centralized or localized clusters in order to distribute servers and subscribers within the OSP host complex **480**.

In the implementation of FIG. **4**, the OSP host complex **480** includes a routing processor **4802**. In general, the routing processor **4802** will examine an address field of a data request, use a mapping table to determine the appropriate destination for the data request, and direct the data request to the appropriate destination. In a packet-based implementation, the client system **405** may generate information requests, convert the requests into data packets, sequence the data packets, perform error checking and other packet-switching techniques, and transmit the data packets to the routing processor **4802**. Upon receiving data packets from the client system **405**, the routing processor **4802** may directly or indirectly route the data packets to a specified destination within or outside of the OSP host complex **480**. For example, in the event that a data request from the client system **405** can be satisfied locally, the routing processor **4802** may direct the data request to a local server **4804**. In the event that the data request cannot be satisfied locally, the routing processor **4802** may direct the data request externally to the Internet **465** or the IM host complex **490** through the gateway **485**.

The OSP host complex **480** also includes a proxy server **4806** for directing data requests and/or otherwise facilitating communication between the client system **405** and the Internet **465**. The proxy server **4802** may include an IP ("Internet Protocol") tunnel for converting data from OSP protocol into standard Internet protocol and transmitting the data to the Internet **465**. The IP tunnel also converts data received from the Internet in the standard Internet protocol back into the OSP protocol and sends the converted data to the routing processor **4802** for delivery back to the client system **405**.

The proxy server **4806** also may allow the client system **405** to use standard Internet protocols and formatting to access the OSP host complex **480** and the Internet **465**. For example, the subscriber can use an OSP TV client application having an embedded browser application installed on the client system **405** to generate a request in standard Internet protocol, such as HTTP ("HyperText Transport Protocol"). In a packet-based implementation, data packets may be encapsulated inside a standard Internet tunneling protocol, such as, for example, UDP ("User Datagram Protocol") and routed to the proxy server **4806**. The proxy server **4806** may include a L2TP ("Layer Two Tunneling Protocol") tunnel capable of establishing a point-to-point protocol (PPP) session with the client system **405**.

The proxy server **4806** also may act as a buffer between the client system **405** and the Internet **465**, and may implement content filtering and time saving techniques. For example, the proxy server **4806** can check parental control settings of the client system **405** and request and transmit content from the Internet **465** according to the parental control settings. In addition, the proxy server **4806** may include one or more caches for storing frequently accessed information. If

requested data is determined to be stored in the caches, the proxy server **4806** may send the information to the client system **405** from the caches and avoid the need to access the Internet **465**.

Referring to FIG. **5**, a communications system **500** is capable of delivering and exchanging information between a client system **505** and a host system **510** through a communication link **515**. Client system **505** typically includes one or more client devices **520** and one or more client controllers **525** for controlling the client devices **520**. Host system **510** typically includes one or more host devices **535** and one or more host controllers **540** for controlling the host devices **535**. The communications link **515** may include communication pathways **550**, **555** enabling communications through the one or more delivery networks **560**. As shown, the client system **505** may access the Internet **565** through the host system **510**.

Examples of each element within the communication system of FIG. **5** are broadly described above with respect to FIGS. **1-4**. In particular, the client system **505** and the communications link **515** typically have attributes comparable to those described with respect to client systems **105**, **205**, **305**, and **405** and communications links **115**, **215**, **315**, and **415** of FIGS. **1-4**. Likewise, the host system **510** of FIG. **5** may have attributes comparable to the host systems **110**, **210**, **310**, and **410** shown in FIGS. **1-4**, and illustrates one possible implementation of those systems. However, FIG. **5** describes an aspect of the host system **510**, focusing primarily on one particular implementation of IM host complex **590**. In general for purposes of communicating with the IM host complex **590**, the delivery network **560** is a telephone network.

The client system **505** includes a client device **520** and a client controller **525**. The client controller **525** is capable of establishing a connection to the host system **510**, including the OSP host complex **580**, the IM host complex **590** and/or the Internet **565**. In one implementation, the client controller **525** includes an IM application for communicating with servers in the IM host complex **590** utilizing exclusive IM protocols. The client controller **525** also may include applications, such as an OSP client application, and/or an Internet browser application for communicating with the OSP host complex **580** and the Internet **565**, respectively.

The host system **510** includes a host device **535** and a host controller **540**. The host controller **540** is generally capable of transmitting instructions to any or all of the elements of the host device **535**. For example, in one implementation, the host controller **540** includes one or more software applications loaded on one or more elements of the host device **535**. However, in other implementations, as described above, the host controller **540** may include any of several other programs, machines, and devices operating independently or collectively to control the host device **535**.

The host system **510** includes a login server **570** capable of enabling communications with and authorizing access by client systems **505** to various elements of the host system **510**, including an OSP host complex **580** and an IM host complex **590**. The login server **570** may implement one or more authorization procedures to enable simultaneous access to the OSP host complex **580** and the IM host complex **590**. The OSP host complex **580** and the IM host complex **590** are connected through one or more OSP host complex gateways **585** and one or more IM host complex gateways **595**. Each OSP host complex gateway **585** and IM host complex gateway **595** may perform any protocol conversions necessary to enable communication between the OSP host complex **580**, the IM host complex **590**, and the Internet **565**.

To access the IM host complex **590** to begin an instant messaging session, the client system **505** establishes a connection to the login server **570**. The login server **570** typically determines whether the particular subscriber is authorized to access the IM host complex **590** by verifying a subscriber identification and password. If the subscriber is authorized to access the IM host complex **590**, the login server **570** employs a hashing technique on the subscriber's screen name to identify a particular IM server **5902** for use during the subscriber's session. The login server **570** provides the client system **505** with the IP address of the particular IM server **5902**, gives the client system **505** an encrypted key (i.e., a cookie), and breaks the connection. The client system **505** then uses the IP address to establish a connection to the particular IM server **5902** through the communications link **515**, and obtains access to that IM server **5902** using the encrypted key. Typically, the client system **505** will be equipped with a Winsock API ("Application Programming Interface") that enables the client system **505** to establish an open TCP connection to the IM server **5902**.

Once a connection to the IM server **5902** has been established, the client system **505** may directly or indirectly transmit data to and access content from the IM server **5902** and one or more associated domain servers **5904**. The IM server **5902** supports the fundamental instant messaging services and the domain servers **5904** may support associated services, such as, for example, administrative matters, directory services, chat and interest groups. In general, the purpose of the domain servers **5904** is to lighten the load placed on the IM server **5902** by assuming responsibility for some of the services within the IM host complex **590**. By accessing the IM server **5902** and/or the domain server **5904**, a subscriber can use the IM client application to view whether particular subscribers ("buddies") are online, exchange instant messages with particular subscribers, participate in group chat rooms, trade files such as pictures, invitations or documents, find other subscribers with similar interests, get customized news and stock quotes, and search the Web.

In the implementation of FIG. **5**, the IM server **5902** is directly or indirectly connected to a routing gateway **5906**. The routing gateway **5906** facilitates the connection between the IM server **5902** and one or more alert multiplexors **5908**, for example, by serving as a link minimization tool or hub to connect several IM servers to several alert multiplexors. In general, an alert multiplexor **5908** maintains a record of alerts and subscribers registered to receive the alerts.

Once the client system **505** is connected to the alert multiplexor **5908**, a subscriber can register for and/or receive one or more types of alerts. The connection pathway between the client system **505** and the alert multiplexor **5908** is determined by employing another hashing technique at the IM server **5902** to identify the particular alert multiplexor **5908** to be used for the subscriber's session. Once the particular multiplexor **5908** has been identified, the IM server **5902** provides the client system **505** with the IP address of the particular alert multiplexor **5908** and gives the client system **505** an encrypted key (i.e., a cookie). The client system **505** then uses the IP address to connect to the particular alert multiplexor **5908** through the communication link **515** and obtains access to the alert multiplexor **5908** using the encrypted key.

The alert multiplexor **5908** is connected to an alert gate **5910** that, like the IM host complex gateway **595**, is capable of performing the necessary protocol conversions to form a bridge to the OSP host complex **580**. The alert gate **5910** is the interface between the IM host complex **590** and the physical servers, such as servers in the OSP host complex **580**, where state changes are occurring. In general, the information

regarding state changes will be gathered and used by the IM host complex **590**. However, the alert multiplexor **5908** also may communicate with the OSP host complex **580** through the IM gateway **595**, for example, to provide the servers and subscribers of the OSP host complex **580** with certain information gathered from the alert gate **5910**.

The alert gate **5910** can detect an alert feed corresponding to a particular type of alert. The alert gate **5910** may include a piece of code (alert receive code) capable of interacting with another piece of code (alert broadcast code) on the physical server where a state change occurs. In general, the alert receive code installed on the alert gate **5910** instructs the alert broadcast code installed on the physical server to send an alert feed to the alert gate **5910** upon the occurrence of a particular state change. Upon detecting an alert feed, the alert gate **5910** contacts the alert multiplexor **5908**, which in turn, informs the client system **505** of the detected alert feed.

In the implementation of FIG. **5**, the IM host complex **590** also includes a subscriber profile server **5912** connected to a database **5914** for storing large amounts of subscriber profile data. The subscriber profile server **5912** may be used to enter, retrieve, edit, manipulate, or otherwise process subscriber profile data. In one implementation, a subscriber's profile data include, for example, the subscriber's buddy list, alert preferences, designated stocks, identified interests, and geographic location. The subscriber may enter, edit and/or delete profile data using an installed IM client application on the client system **505** to interact with the subscriber profile server **5912**.

Because the subscriber's data are stored in the IM host complex **590**, the subscriber does not have to reenter or update such information in the event that the subscriber accesses the IM host complex **590** using new or a different client system **505**. Accordingly, when a subscriber accesses the IM host complex **590**, the IM server **5902** can instruct the subscriber profile server **5912** to retrieve the subscriber's profile data from the database **5914** and to provide, for example, the subscriber's buddy list to the IM server **5902** and the subscriber's alert preferences to the alert multiplexor **5908**. The subscriber profile server **5912** also may communicate with other servers in the OSP host complex **590** to share subscriber profile data with other services. Alternatively, user profile data may be saved locally on the client device **505**.

Referring to FIG. **6**, a communications system **600** is capable of delivering and exchanging information between a client system **605** and a host system **610** through a communication link **615**. Client system **605** typically includes one or more client devices **620** and one or more client controllers **625** for controlling the client devices **620**. Host system **610** typically includes one or more host devices **635** and one or more host controllers **640** for controlling the host devices **635**. The communication link **615** may include one or more delivery networks **660**. A network **660** may be any known or described delivery network including, but not limited to, a telephone network and/or the Internet. The communications system **600** may be implemented as part of the communications system described above with reference to FIGS. **1-5**.

Examples of each element within the communication system of FIG. **6** are broadly described above with respect to FIGS. **1-5**. In particular, the client system **605** and the communications link **615** typically have attributes comparable to those described with respect to client systems **105**, **205**, **305**, **405**, and **505** and communications links **115**, **215**, **315**, **415**, and **515** of FIGS. **1-5**. Likewise, the host system **610** of FIG. **6** may have attributes comparable to the host systems **110**, **210**, **310**, **410**, and **510** shown in FIGS. **1-5** and may illustrate one possible implementation of those systems. However, FIG. **6** describes an aspect of the host system, focusing primarily on one particular implementation of the host device **635**.

The host system **610** includes a host device **635** and a host controller **640**. The host controller **640** is capable of transmitting instructions to any or all of the elements of the host device **635**. For example, in one implementation, the host controller **640** includes one or more software applications loaded on one or more elements of the host device **635**. However, in other implementations, as described above, the host controller **640** may include any of several other programs, machines, and devices operating independently or collectively to control the host device **635**.

The host system **610** includes a login server **670** capable of enabling communications with and authorizing access by client systems **605** to various elements of the host system **610**, including an OSP host complex **680** and an IM host complex **690**. The login server **670** may implement one or more authorization procedures to enable simultaneous access to the OSP host complex **680** and the IM host complex **690**. The OSP host complex **680** and the IM host complex **690** are connected through one or more OSP host complex gateways **685** and one or more IM host complex gateways **695**. Each OSP host complex gateway **685** and IM host complex gateway **695** may perform any protocol conversions necessary to enable communication between the OSP host complex **680**, the IM host complex **690**, and the Internet **665**.

In one implementation, the host system **635** includes one or more group administrators **6370** in communication with one or more group communicators **6350**. The group communicators **6350** are further in communication with one or more group information updaters **6380**. Each group may have dedicated servers maintained locally on a particular host complex or at a centralized location. As shown, the group communicator **6350** and the group information updater **6380** exist on the OSP host complex **680** and the group administrator **6370** exists on the IM host complex **690**. Other configurations, however, may be used in alternative implementations. For example, the functionality of the group administrator **6370**, the group communicator **6350**, and the group information updater **6380** may reside on a single server or be distributed among multiple servers.

The group communicator **6350** cooperates with the group administrator **6370** and the group information updater **6380** and is configured to deliver and exchange information with current and prospective members of the group. In particular, the group communicator **6350** is configured to process invitations from current members of the group to prospective members. Any of the current group members, as reflected in the group administrator's records, may use the group communicator **6350** to initiate or receive messages from a current or a prospective group member. The group communicator **6350** may send and receive messages from current and prospective group members through an IM server **6902**, the Internet **665**, and/or other communications server **6360** (e.g., e-mail server, chat sever, OSP buddy server). Typically, the group information updater **6350** will include a user interface configured to interact with client devices of group members and facilitate information exchange. The user interface may, for example, allow group members to select and input information (e.g., new group, screen names of invited members) to the group communicator **6350** and allow entered information (e.g., group membership, screen names of group members) to be extracted by the group communicator **6350**.

In one implementation, the group communicator **6350** communicates with an IM server **6902**, the Internet **665**, and/or other communications server **6360**. The group com-

municator **6350** is configured to permit access to various groups, and to route communications of group members to the correct servers for delivery to prospective members. The login server **670** may assist the group communicator **6350** with authorizing access to the various groups.

The group administrator **6370** is configured to keep track of information about current group members and to provide automatically updated services to current group members. In one implementation, the group administrator **6370** includes a group member profile sever **6372** configured to enter, update, retrieve, store, edit, manipulate, or otherwise process information about the current members of a group and a database **6374** for storing information associated with group members. The group administrator **6370** may be configured to gather and track information about the online status of and services provided to current group members. In one implementation, the group administrator **6370** communicates with an IM server **6902** that monitors the online status and capabilities of group members. The group administrator **6370** also may, for example, communicate with the OSP Host Complex **680** or the Internet **665** to gather and track such information.

The group information updater **6380** cooperates with the group communicator **6350** and the group administrator **6370** and is configured to perform all necessary processing to keep the information about the current group members up to date. In one implementation, the group information updater **6380** is configured to instruct the group administrator **6370** to update information associated with group members.

Referring to FIG. **7**, a current member **702***a*, a prospective member **702***b*, and a host **704** interact according to a procedure **700** to share information among members of a group. The current member **702***a* and the prospective member **702***b* are each associated with a user and typically have attributes comparable to those described above with respect to client devices **120**, **220**, **320**, **420**, **520**, and **620** and/or client controllers **125**, **225**, **325**, **425**, **525**, and **625**. The host **704** typically has attributes comparable to those described above with respect to host devices **135**, **235**, **335**, **435**, **535**, and **635** and/or host controllers **140**, **240**, **340**, **440**, **540**, and **640** in host systems **110**, **210**, **310**, **410**, **510**, and **610**. The host **704** may be directly or indirectly interconnected to the client **702***a* and the client **702***b* through a known or described delivery network. The procedure **700** may be implemented by any type of hardware, software, device, computer, computer system, equipment, component, application, code, storage medium, or propagated signal.

There may be several different levels and types of groups. Examples of groups include, but are not limited to, family, friends, co-workers, classmates, teammates, affiliates, and the like. Subscribers may create and join several different groups. The group feature may be associated with and/or provided by different host complexes (e.g., Groups@AOL, Groups@CompuServe) and/or different web pages (e.g., Groups@Netseape.com, Groups@CNN.com).

A group typically will be made up of a subset of the subscribers to the host **704**, but may include members who are not subscribers to the host **704**. To participate in a group, a subscriber must either create a new group and invite others to join, or enter a group to which the subscriber has been invited. In one implementation, when a subscriber creates a group, the subscriber is considered the "founder" of the group. As the founder, the subscriber has the ability to remove members and delete content. Any member can leave a group at any time after joining, but only the founder of a group can delete a group. When a founder leaves the group, the group must also be deleted. Alternatively, any group member may be provided with the same capabilities as the founder, including the ability to remove members, delete content and delete the group.

The founder can designate other group members to manage the group as "owners" of the group. A group owner is allowed to change settings (e.g., homepage group title or description) for the entire group, delete and edit group and other member's content, invite prospective members, change member/owner status of any other member, send administrative e-mails as an owner, and even remove troublesome members. Group owners are notified when there is an issue with member e-mail. If there are repeated delivery difficulties or excessive unsolicited bulk mail—an indication of possible mail list abuse—a member may be temporarily suspended from participating in the group mail list. The group owner may opt to resume delivery, remove the member from the group or resolve the issue later.

To create a group, a subscriber enters attributes of the group to the host **704** through a user interface displayed on a client device. The group attributes may include, but are not limited to, a unique group name, a description of the group, a time zone so that events are properly timed, a group theme (e.g., Family, Friends, Activity Group), and a design style having a certain color schemes images that represent members. The subscriber also may create a personal profile and make it available to other group members. The personal profile may include information such as name, e-mail address, mailing address, phone numbers, birthday (which shows up automatically in an events area), an image (e.g., photo, icon), a home page, and/or other personal information (e.g., quotes, messages).

Once the subscriber has created the group, the subscriber is considered the founder, an owner, and a member of the group. In one implementation described in more detail below, any member of the group can extend an invitation to a prospective member. In other implementations, however, the ability to invite prospective members may be limited only to founders and/or owners of the group.

Referring again to FIGS. **6** and **7**, a current member **702***a* sends to the host **704** an instruction to invite at least one prospective member **702***b* to join the group (step **705**). In one implementation, the current member **702***a* presents a user interface to a subscriber for inputting a screen name or e-mail address associated with the prospective member **702***b*. In another implementation, the current member **702***a* sends an invitation when the right button of a computer mouse is clicked while pointing to a screen name associated with a prospective member **702***b*. The right click causes a menu of choices to appear. When an option from the menu to send an e-mail message inviting the prospective member **702***b* to join the group is selected, the current member **702***a* automatically generates the invitation.

The host **704** receives the instruction to invite the prospective member **702***b* (step **710**) and in response sends an invitation to the prospective member **702***b* to join the group (step **715**). The invitation may be sent as, for example, an e-mail message, an instant message, a post in an online chat room, or by other suitable communication. In one implementation, the group communicator **6350** receives the instruction and sends the invitation through at least one of the IM server **6902**, the Internet **665**, and/or other communications server **6360** (e.g., e-mail server, chat sever, OSP buddy server).

The prospective member **702***b* receives the invitation to join the group (step **720**) and sends to the host **704** a response to the invitation (step **725**). In one implementation, the invitation includes a hyperlink to facilitate joining the group, a personal welcoming message, and/or a list of current group members. When the hyper-link contained in the invitation is

clicked, the prospective member **720***b* sends an affirmative confirmation message indicating the prospective member's desire to join the group and links to the group web site. The response may be sent as, for example, an e-mail message, an instant message, a post in an on-line chat room, or other suitable communication. The response may be affirmative, indicating the prospective member's desire to join the group, or the response may be negative, indicating the prospective member's desire not to join the group. If no response is sent, the lack of a response may be deemed to be a negative response after an appropriate length of time has passed. Alternatively, the lack of a response may be deemed to be a positive response after an appropriate length of time has passed.

The host **704** receives the response from the prospective member **702***b* (step **730**) and notifies the sender of the response (step **735**). In one implementation, the group communicator **6350** receives and notes the response to the invitation from the prospective member **702***b*. The group communicator **6350** then sends a notification to the current member based on the response. If the response from the prospective member is negative, the group communicator **6350** informs the current member that the prospective member **702***b* has declined the invitation. If, on the other hand, the response from the prospective member **702***b* is affirmative (i.e., the invitation is accepted), the host **704** adds the prospective member **702***b* to the group (step **740**) and provides automatically updated services to current members of the group (step **745**).

The automatically updated services provided to current members of the group by the host **704** include, but are not limited to, providing a private group website, a list of current group members, a shared buddy list, a shared address book, shared member profiles, a shared calendar, a shared map, a shared message board, a private on-line forum for current group members to chat with one another, a shared list of favorite sites, a shared photo gallery, and/or any other type of shared data files. New automatically updated services based upon the current group members may be offered. For example, enhanced services based on the equipment capabilities of the group members may be offered when at least some group members upgrade hardware and/or software.

The private group website is accessible only to members. Typically, each member will be prompted for the group name and a password to enter. The group website may have text, images, audio, and video information related to the group and also may include hyper-links to other areas and services of interest to group members. A list of current group members may be displayed on the website or accessed by a hyperlink. The list also may indicate the online status of each group member, note the last time a particular member visited the site, and include short cut ways to communicate with group members (e.g., right click to e-mail or instant message).

In addition to other elements, the shared buddy list includes, the screen names of group members to facilitate instant messaging communication. In general, a subscriber's buddy list is a user interface that lists the online status and capabilities of certain screen names, i.e., "buddies," identified by the subscriber. In particular, the buddy list interfaces with the host **704** to identify which buddies are online, i.e., currently accessing the host **704**. The buddy list also facilitates instant messaging communication between subscribers. A subscriber can activate an instant messaging message window pre-addressed to a buddy simply by clicking the screen name of a buddy on the buddy list. Otherwise, the subscriber must activate and address a blank instant messaging window. When necessary, a subscriber can look up the screen name of an intended recipient using the intended recipient's e-mail address or other identifying information.

The shared address book may contain information about group members including, but not limited to, names, addresses (e.g., residential or business), e-mail addresses, instant messaging screen names, telephone numbers, comments, home page address, and/or any other personal information. The shared personal profile of a group member may include only that personal information desired by the member to be shared with the group or the Internet community at large.

The shared calendar may contain information about group members including, but not limited to, events, appointments, anniversaries, birthdays, holidays, and/or any other designated date. Group members may receive invitations and/or reminders about important dates (e.g. an invitation to attend an event).

The shared map may contain information including, but not limited to, home and work locations of members, the current locations of members, a meeting place, an event location, or any other designated area. Driving directions to and from locations also may be provided.

The shared message board provides a way for group members to post thoughts, messages, and/or comments for subsequent viewers. After a post is made, the group member may be prompted to e-mail or instant message the post to some or all group members. The private on-line forum allows group members to chat with one another. Group members may view who is in the chat room, invite absent members to attend the chat session, coordinate a time to visit the chat room, and/or engage in a spontaneous chat session with some or all other members visiting the group website.

The shared list of favorite sites may include, but is not limited to, group related websites, favorite websites of members, and/or any other Internet site. Group members also may post recommendations and/or opinions about certain links to web sites, music, books, movies, and the like. The shared photo gallery may include individual photographs or albums of photographs online. Group members may download and/or order prints of the images. Current members also may share data files of any other type including, but not limited to, text files, audio files, image files, video files, and/or multimedia files.

The shared information associated with the automatically updated services is stored on the host system **610**. In one implementation, the host system **610** includes a group administrator **6370** having a group member profile server **6372** and a database **6374** for storing information associated with group members. The group member profile server **6372** enters, updates, retrieves, store, edits, manipulates, or otherwise processes information stored in the database **6374**. The shared information associated with the automatically updated services may be stored in the database **6374** by group and/or by individual subscriber. For example, information associated with a particular subscriber may include, but is not limited to, a personal profile, a buddy list, an address book, a calendar, a list of favorite sites, group memberships, and/or any other user preference.

The information associated with the automatically updated services typically will be provided to current members based upon information entered by at least one current member of the group. Group information, however, may be entered or supplemented by a person or a system outside of the group.

In one implementation, upon receiving an affirmative response from the prospective member **702***b*, the group communicator **6350** instructs the group information updater **6380** to add the prospective member to the group. The group information updater **6380** updates the list of current members and

adds the prospective member to the current members of the group. The group information updater **6380** then communicates the addition of the prospective member to the group administrator **6370** and instructs the group administrator to update the group member information. In one implementation, the group information updater **6380** communicates with the group administrator **6370** through gateways **685**, **695**.

The group administrator **6370** receives the notification and instruction regarding the updated group membership and in response updates the information associated with members of the group. In one implementation, the group member profile server **6372** accesses the information stored in the database **6374** and populates the storage space associated with the members of the group with updated information. For example, a buddy list associated with a current group member **702***b* will be populated with the screen names of all the current members of the group, including the screen names of the prospective members that have accepted an invitation. The buddy list of a group member is updated by adding screen names of new members and deleting screen names of former members. During an instant messaging session, the group member is in constant communication with the IM server **6902**. The IM server, in turn, is in constant communication with the group member profile server **6372** and automatically updates the group members buddy list when a change to a group is made.

As shown in FIG. **8**, a UI **800** illustrates an example of how the prospective member **702***b* may be invited to join a Buddy List group by a current member **702***a*. The UI **800** presented to the prospective member **702***b* includes the name of the group **805** and the current members of the group **810**. The UI **800** provides buttons or other suitable graphical tools to allow the prospective member **702***b* to accept the invitation **815** or to reject the invitation **820**. As an alternative to a button, a hyperlink, a pull-down menu, a popup menu, or another graphical tool may be used to allow the prospective member **702***b* to respond to the invitation.

Other embodiments are within the scope of the following claims.

What is claimed is:

1. A computer-implemented method comprising:

maintaining, for a founding instant messaging identity, a group of instant messaging participants that has a membership that includes at least one instant messaging participant not explicitly selected for inclusion in the group by the founding instant messaging identity, the group being founded by the founding instant messaging identity;

causing a display, to the founding instant messaging identity, of an instant messaging participant list that is configured to reflect online presence information for other instant messaging identities included in the instant messaging participant list and that is configured to enable the founding instant messaging identity to initiate instant messaging sessions with the other instant messaging identities included in the instant messaging participant list, the displayed instant messaging participant list including a representation of the group of instant messaging participants that reflects the membership of the group of instant messaging participants;

receiving a request, from a member of the group of instant messaging participants other than the founding instant messaging identity, to invite a new instant messaging participant to join the group of instant messaging participants, or to remove an old instant messaging participant from the group of instant messaging participants;

as a consequence of receiving the request to invite the new instant messaging participant to join the group of instant messaging participants, automatically transmitting an electronic invitation to join the group of instant messaging participants to the new instant messaging participant, the electronic invitation being transmitted in the form of a hyperlink contained in an electronic message;

upon acceptance of the invitation by the new instant messaging participant, determining that a change, which was not inspired by the founding instant messaging identity, in the membership of the group of instant messaging participants has occurred; and

automatically triggering, without involvement from the founding instant messaging identity, an updating of the displayed instant messaging participant list to reflect the change in the membership of the group of instant messaging participants;

wherein the founding instant messaging identity is the only member authorized to delete the group of instant messaging participants.

2. The method of claim **1** wherein:

determining that a change in the membership of the group of instant messaging participants has occurred includes determining that a new member has been added to the group of instant messaging participants; and

automatically triggering the updating of the displayed instant messaging participant list to reflect the change in membership of the group of instant messaging participants includes automatically adding a representation of the new member to the displayed representation of the group of instant messaging participants on the displayed instant messaging participant list for the founding instant messaging identity.

3. The method of claim **1** wherein:

determining that a change in membership of the group of instant messaging participants has occurred includes determining that an old member has been removed from the group of instant messaging participants; and

automatically triggering the updating of the displayed instant messaging participant list to reflect the change in membership of the group of instant messaging participants includes automatically deleting a displayed representation of the old member from the representation of the group of instant messaging participants on the displayed instant messaging participant list.

4. The method of claim **2** further comprising:

receiving, from the new instant messaging participant, an indication of an acceptance of the invitation to join the group of instant messaging participants;

as a consequence of receiving the indication of the acceptance of the invitation to join the group of instant messaging participants, adding the new instant messaging participant to the group of instant messaging participants, wherein:

determining that a new member has been added to the group of instant messaging participants includes determining that the new instant messaging participant has been added to the group of instant messaging participants, and

automatically adding a representation of the new member to the displayed representation of the group of instant messaging participants on the displayed instant messaging participant list for the founding instant messaging identity includes automatically adding a representation of the new instant messaging participant to the displayed representation of the group of instant messaging participants on the dis-

played instant messaging participant list for the founding instant messaging identity.

5. The method of claim **4** further comprising determining if the member of the group of instant messaging participants is authorized to invite instant messaging participants to join the group of instant messaging participants as a consequence of receiving the request to invite the new instant messaging participant to join the group of instant messaging participants from the member of the group of instant messaging participants, wherein transmitting the electronic invitation to join the group of instant messaging participants to the new instant messaging participant includes transmitting the electronic invitation to join the group of instant messaging participants only after determining that the member of the group of instant messaging participants is authorized to invite instant messaging participants to join the group of instant messaging participants.

6. The method of claim **3** further comprising:

as a consequence of receiving a request to remove an old instant messaging participant from the group of instant messaging participants, removing the old instant messaging participant from the group of instant messaging participants, wherein:

determining that an old member has been removed from the group of instant messaging participants includes determining that the old instant messaging participant has been removed from the group of instant messaging participants, and

automatically deleting a displayed representation of the old member from the representation of the group of instant messaging participants on the displayed instant messaging participant list includes automatically deleting a displayed representation of the old instant messaging participant from the representation of the group of instant messaging participants on the displayed instant messaging participant list.

7. The method of claim **6** further comprising determining if the member of the group of instant messaging participants is authorized to remove instant messaging participants from the group of instant messaging participants as a consequence of receiving the request to remove the old instant messaging participant from the group of instant messaging participants from the member of the group of instant messaging participants, wherein removing the old instant messaging participant from the group of instant messaging participants includes removing the old instant messaging participant from the group of instant messaging participants only after determining that the member of the group of instant messaging participants is authorized to remove instant messaging participants from the group of instant messaging participants.

8. A system comprising:

a processing device; and

a memory storage system storing instructions that, when executed by the processing device, cause the processing device to:

maintain, for a founding instant messaging identity, a group of instant messaging participants that has a membership that includes at least one instant messaging participant not explicitly selected for inclusion in the group by the founding instant messaging identity, the group being founded by the founding instant messaging identity;

cause a display, to the founding instant messaging identity, of an instant messaging participant list that is configured to reflect online presence information for other instant messaging identities included in the instant messaging participant list and that is configured to enable the founding instant messaging identity to initiate instant messaging sessions with the other instant messaging identities included in the instant messaging participant list, the displayed instant messaging participant list including a representation of the group of instant messaging participants that reflects the membership of the group of instant messaging participants;

receive a request, from a member of the group of instant messaging participants other than the founding instant messaging identity, to invite a new instant messaging participant to join the group of instant messaging participants, or to remove an old instant messaging participant from the group of instant messaging participants;

as a consequence of receiving the request to invite the new instant messaging participant to join the group of instant messaging participants, automatically transmit an electronic invitation to join the group of instant messaging participants to the new instant messaging participant, the electronic invitation being transmitted in the form of a hyperlink contained in an electronic message;

upon acceptance of the invitation by the new instant messaging participant, determine that a change, which was not inspired by the founding instant messaging identity, in the membership of the group of instant messaging participants has occurred; and

automatically trigger, without involvement from the founding instant messaging identity, an updating of the displayed instant messaging participant list to reflect the change in the membership of the group of instant messaging participants

wherein the founding instant messaging identity is the only member authorized to delete the group of instant messaging participants.

9. The system of claim **8** wherein:

the instructions that, when executed by the processing device, cause the processing device to determine that a change in the membership of the group of instant messaging participants has occurred include instructions that, when executed by the processing device, cause the processing device to determine that a new member has been added to the group of instant messaging participants; and

the instructions that, when executed by the processing device, cause the processing device to automatically trigger the updating of the displayed instant messaging participant list to reflect the change in membership of the group of instant messaging participants include instructions that, when executed by the processing device, cause the processing device to automatically add a representation of the new member to the displayed representation of the group of instant messaging participants on the displayed instant messaging participant list for the founding instant messaging identity.

10. The system of claim **9** wherein:

the memory storage system further includes instructions that, when executed by the processing device, cause the processing device to:

receive, from the new instant messaging participant, an indication of an acceptance of the invitation to join the group of instant messaging participants, and

as a consequence of receiving the indication of the acceptance of the invitation to join the group of instant

messaging participants, add the new instant messaging participant to the group of instant messaging participants;

the instructions that, when executed by the processing device, cause the processing device to determine that a new member has been added to the group of instant messaging participants include instructions that, when executed by the processing device, cause the processing device to determine that the new instant messaging participant has been added to the group of instant messaging participants; and

the instructions that, when executed by the processing device, cause the processing device to automatically add a representation of the new member to the displayed representation of the group of instant messaging participants on the displayed instant messaging participant list for the founding instant messaging identity include instructions that, when executed by the processing device, cause the processing device to automatically add a representation of the new instant messaging participant to the displayed representation of the group of instant messaging participants on the displayed instant messaging participant list for the founding instant messaging identity.

11. The system of claim **10** wherein:

the memory storage system further includes instructions that, when executed by the processing device, cause the processing device to determine if the member of the group of instant messaging participants is authorized to invite instant messaging participants to join the group of instant messaging participants as a consequence of receiving the request to invite the new instant messaging participant to join the group of instant messaging participants from the member of the group of instant messaging participants; and

the instructions that, when executed by the processing device, cause the processing element to transmit the electronic invitation to join the group of instant messaging participants to the new instant messaging participant include instructions that, when executed by the processing device, cause the processing device to transmit the electronic invitation to join the group of instant messaging participants only after determining that the member of the group of instant messaging participants is authorized to invite instant messaging participants to join the group of instant messaging participants.

12. The system of claim **8** wherein:

the instructions that, when executed by the processing device, cause the processing device to determine that a change in membership of the group of instant messaging participants has occurred include instructions that, when executed, cause the processing device to determine that an old member has been removed from the group of instant messaging participants; and

the instructions that, when executed by the processing device, cause the processing device to automatically trigger the updating of the displayed instant messaging participant list to reflect the change in membership of the group of instant messaging participants include instructions that, when executed by the processing device, cause the processing device to automatically delete a displayed representation of the old member from the representation of the group of instant messaging participants on the displayed instant messaging participant list.

13. The system of claim **12** wherein:

the memory storage system further includes instructions that, when executed by the processing device, cause the processing device to:

as a consequence of receiving a request to remove an old instant messaging participant from the group of instant messaging participants, remove the old instant messaging participant from the group of instant messaging participants;

the instructions that, when executed by the processing device, cause the processing device to determine that an old member has been removed from the group of instant messaging participants include instructions that, when executed by the processing device, cause the processing device to determine that the old instant messaging participant has been removed from the group of instant messaging participants; and

the instructions that, when executed by the processing device, cause the processing device to automatically delete a displayed representation of the old member from the representation of the group of instant messaging participants on the displayed instant messaging participant list include instructions that, when executed by the processing device, cause the processing device to automatically delete a displayed representation of the old instant messaging participant from the representation of the group of instant messaging participants on the displayed instant messaging participant list.

14. The system of claim **13** wherein:

the memory storage system further includes instructions that, when executed by the processing device, cause the processing device to determine if the member of the group of instant messaging participants is authorized to remove instant messaging participants from the group of instant messaging participants as a consequence of receiving the request to remove the old instant messaging participant from the group of instant messaging participants from the member of the group of instant messaging participants; and

the instructions that, when executed by the processing device, cause the processing device to remove the old instant messaging participant from the group of instant messaging participants include instructions that, when executed by the processing device, cause the processing device to remove the old instant messaging participant from the group of instant messaging participants only after determining that the member of the group of instant messaging participants is authorized to remove instant messaging participants from the group of instant messaging participants.

15. A non-transitory computer-readable storage medium storing instructions that, when executed by a computer, cause the computer to:

maintain, for a founding instant messaging identity, a group of instant messaging participants that has a membership that includes at least one instant messaging participant not explicitly selected for inclusion in the group by the founding instant messaging identity, the group being founded by the founding instant messaging identity;

cause a display, to the founding instant messaging identity, of an instant messaging participant list that is configured to reflect online presence information for other instant messaging identities included in the instant messaging participant list and that is configured to enable the founding instant messaging identity to initiate instant messaging sessions with the other instant messaging

identities included in the instant messaging participant list, the displayed instant messaging participant list including a representation of the group of instant messaging participants that reflects the membership of the group of instant messaging participants;

receive a request, from a member of the group of instant messaging participants other than the founding instant messaging identity, to invite a new instant messaging participant to join the group of instant messaging participants, or to remove an old instant messaging participant from the group of instant messaging participants;

as a consequence of receiving the request to invite the new instant messaging participant to join the group of instant messaging participants, automatically transmitting an electronic invitation to join the group of instant messaging participants to the new instant messaging participant, the electronic invitation being transmitted in the form of a hyperlink contained in an electronic message:

upon acceptance of the invitation by the new instant messaging participant, determine that a change, which was not inspired by the founding instant messaging identity, in the membership of the group of instant messaging participants has occurred; and

automatically trigger, without involvement from the founding instant messaging identity, an updating of the displayed instant messaging participant list to reflect the change in the membership of the group of instant messaging participants

wherein the founding instant messaging identity is the only member authorized to delete the group of instant messaging participants.

16. The non-transitory computer-readable storage medium of claim **15** wherein:

the instructions that, when executed by the computer, cause the computer to determine that a change in the membership of the group of instant messaging participants has occurred include instructions that, when executed by the computer, cause the computer to determine that a new member has been added to the group of instant messaging participants; and

the instructions that, when executed by the computer, cause the computer to automatically trigger the updating of the displayed instant messaging participant list to reflect the change in membership of the group of instant messaging participants include instructions that, when executed by the computer, cause the computer to automatically add a representation of the new member to the displayed representation of the group of instant messaging participants on the displayed instant messaging participant list for the founding instant messaging identity.

17. A computer-implemented method for controlling membership in an Internet network group having a plurality of members, the method comprising:

maintaining an Internet network group for a founding member, the Internet network group including a plurality of members, the group being founded by the founding instant messaging identity;

transmitting instructions to display online presence information for the plurality of members of the Internet network group, the online presence information including information identifying when one or more of the plurality of members of the Internet network group is capable of receiving Internet communications;

enabling the founding member of the Internet network group to transmit communications to a second member of the Internet network group when online presence information indicates that the second member is capable of receiving Internet communications;

receiving a request from a third member of the Internet network group, other than the founding member or the second member, to invite a new member to join the Internet network group;

determining whether the third member of the Internet network group is authorized to invite the new member to join the Internet network group;

as a consequence of determining that the third member of the Internet network group is authorized to invite the new member to loin the Internet network group, automatically transmitting an electronic invitation to join the Internet network group to the new instant messaging participant, the electronic invitation being transmitted in the form of a hyperlink contained in an electronic message;

upon acceptance of the invitation by the new instant messaging participant, automatically updating the Internet network group maintained for the founding member by adding the new member to the Internet network group when the third member of the Internet network group is authorized to invite the new member to join the Internet network group;

automatically transmitting, after the new member has been added to the Internet network group, instructions to display online presence information identifying when the new member is capable of receiving Internet communications;

receiving a request from the third member of the Internet network group to remove an existing member from the Internet network group;

determining whether the third member of the Internet network group is authorized to remove the existing member from the Internet network group;

automatically updating the Internet network group maintained for the founding member by removing the existing member from the Internet network group when the third member is authorized to remove the existing member from the Internet network group; and

automatically transmitting instructions not to display online presence information associated with the existing member after the existing member has been removed from the Internet network group;

wherein the founding instant messaging identity is the only member authorized to delete the group of instant messaging participants.

18. The method of claim **17** further comprising:

as a consequence of determining that the third member is authorized to invite the new member to join the Internet network group, transmitting an electronic invitation to the new member to join the Internet network group;

receiving, from the new member, an indication of an acceptance of the invitation to join the Internet network group; and

as a consequence of receiving the indication of the acceptance of the invitation to join the Internet network group, adding the new member to the Internet network group, by automatically adding a representation of the new member to a displayed representation of the Internet network group on a displayed instant messaging participant list for the founding member.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 8,103,729 B2
APPLICATION NO. : 12/246191
DATED : January 24, 2012
INVENTOR(S) : Catherine Tornabene et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claim 8, col. 20, line 35, insert --;-- after "participants".

Claim 15, col. 23, line 28, insert --;-- after "participants".

Signed and Sealed this
Twenty-sixth Day of June, 2012

David J. Kappos

David J. Kappos
Director of the United States Patent and Trademark Office