Title: SYSTEMS AND METHODS FOR PROVIDING UNIFIED COLLABORATION SYSTEMS WITH CONDITIONAL COMMUNICATION HANDLING

Abstract: A communication system provides integrated email, telephone and instant messenger communication including a common address book, a common log of communication history and shared presence information. A user can respond to a communication according to any format, email, telephone or instant messenger, with a response using the same format or any other format. The response may be initiated by a single command.
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SYSTEMS AND METHODS FOR PROVIDING UNIFIED COLLABORATION SYSTEMS WITH CONDITIONAL COMMUNICATION HANDLING

BACKGROUND OF THE INVENTION

The present invention relates to improvements in communication, and in particular, relates to the integration of existing communication formats in a manner that provides additional functionality to a user.

Various communication formats are commonly used for electronic communications. For example, email and instant messenger formats are commonly used for communication through a personal computer (PC) or other device. Telephone communication is generally performed using a dedicated telephone device (desktop telephone, cell phone, or other device). In some cases Voice over Internet Protocol (VoIP) may allow telephone communication using a PC or similar device. VoIP may also use dedicated hardware such as a desktop IP phone or cell phone. Generally, some additional hardware is needed to use a PC in this way (e.g., an IP handset). Email, instant messenger and telephone communication, where they are provided on a single PC, are often provided by different applications. Such applications use different address books and maintain different communication logs. Thus, when communication between two or more people takes place using different communication formats, responding may require consulting the right address book and sometimes copying and pasting an address to another application, or even manually entering address information. When reviewing past correspondence, two or more different logs may need to be reviewed in order to see the full details of correspondence. Such logs may be reviewed entry-by-entry to determine the order in which individual communications occurred (e.g., from time stamp information). Separate communication formats generally require separate configuration. For example, a user may have an email account set up on an email server and separately have a telephone account set up on a telephone server. Thus, providing and maintaining multiple communications systems is inefficient and often inconvenient.

SUMMARY OF THE INVENTION

In one embodiment, a communication system provides integration between different communication formats including email, telephone and instant messenger. A common address book may be used that includes information for communicating by each communication format. A user can initiate communication according to any communication
format from the address book. A common communication log may be maintained that includes communication according to each communication format. When a communication is received according to one of the communication formats, the user may initiate a reply according to any communication format using a single command. Presence information may be shared and used to manage communication according to different formats. Where presence information is obtained from instant messenger communication, this information may be used to select an email management scheme and a telephone management scheme.

A goal of the present invention is to provide methods, systems, and apparatus for unified collaboration systems. The unified collaboration systems pursuant to the present invention include address books (directories), email services, instant messaging and presence services with gateways to external systems, phone services (including PBX), calendaring, scheduling and file sharing for corporate or private users. Access to each and all components of the system may be based on access policy determined by the system administrator(s).

Headings are used herein for clarity only and without any intended limitation.

A number of references are cited herein, the entire disclosures of which are incorporated herein, in their entirety, by reference for all purposes. Further, none of the cited references, regardless of how characterized above, is admitted as prior to the invention of the subject matter claimed herein.

This invention also includes software products implementing the methods of this invention. Hardware systems variously configured to perform the methods of this invention are also included.

**BRIEF DESCRIPTION OF THE DRAWINGS**

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter that is regarded as forming the present invention, it is believed that the invention will be better understood from the following description taken in conjunction with the accompanying Drawings, in which:

FIGURE 1 illustrates a system organization according to an embodiment of the present invention.

FIGURE 2 illustrates certain relationships between components of FIGURE 1.

FIGURE 3 illustrates a common address book with an entry that contains telephone, email and instant messenger address information for an individual.
FIGURE 4 illustrates a common communication log that includes telephone, instant messenger and email communication history.

FIGURE 5 illustrates an instant messenger session display that provides options to respond to participants by email or telephone in addition to instant messenger.

FIGURE 6 illustrates sharing of presence information between an instant messenger server, email server and PBX server so that email and telephone communication are managed according to presence information obtained from instant messenger communication.

DETAIL DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following detailed description is presented to enable any person skilled in the art to make and use the invention. For purposes of explanation, specific nomenclature is set forth to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that these specific details are not required to practice the invention. Descriptions of specific applications are provided only as representative examples. Various modifications to the preferred embodiments will be readily apparent to one skilled in the art, and the general principles defined herein may be applied to other embodiments and applications without departing from the spirit and scope of the invention. The present invention is not intended to be limited to the embodiments shown, but is to be accorded the widest possible scope consistent with the principles and features disclosed herein.

With reference to FIGURE 1 of the Drawings, there is illustrated therein a simplified view of a communications system 100 according to an embodiment of the present invention. Communications system 100 includes a server portion 102 that is used in communication with one or more client agents. An end user workplace 104 is connected to server portion 102 so that communication to and from the end user workplace 104 passes through server portion 102. As shown in FIGURE 1, end user workplace 104 includes a desk phone 106 and a native client 108. Native client 108 may be considered as an example of a client agent. Native client 108 in the present example is an application running on a PC. In general, multiple end user workplaces are connected to a server portion. For example, a business may provide end user workplaces to its employees, with each employee having a desk phone and a PC that includes a native client. In addition, some employees may work remotely and may maintain communication through a web client, such as web client 110. Other employees may remain in communication through a mobile client, such as a PDA,
laptop with WiFi or a blackberry (e.g., mobile client 112). Web clients and mobile clients may be considered as different types of client agents.

Server portion 102 of communication system 100 may consist of software on a single hardware platform or may consist of software extending over several hardware platforms. The term "server" is generally used to describe software that performs server functions in relation to a client (such as native client of FIGURE 1) and is not limited to any particular hardware configuration, though in some cases a server may operate on a dedicated hardware platform (sometimes also referred to as a server). In one example, a server portion consists of several software servers on a single hardware platform, each server performing a different function. In the present example, server portion 102 includes an email server 114, an instant messenger (IM) server 116, a Private Branch Exchange (PBX) server 118, a file manager server 120, an address book server 122 and a calendar/task server 124. Other servers may also be provided in some cases. The servers are operated in an integrated manner to provide a user with integrated communication capability.

An email server, such as email server 114, may include computer hardware and software having a front end module ("FEM"), a mail access module ("MAM"), a data exchange module, a client notification module ("CNM"), a mail transfer module ("MTM"), a mail processing module ("MPM"), and an authentication and authorization module, as is understood in the art. A mail-transfer agent includes computer hardware and software having a mail transfer module, a data exchange module, a mail processing module, and an authentication and authorization module. Email communications that a user sends from native client 108 pass through email server 114 and are directed to their recipients. Email communications may be received from other native clients or from other servers (which may be outside the aforedescribed server portion 102). Any such email communications that are addressed to the user are sent to the respective native client 108 by email server 114.

When an email message arrives at communication system 100, a mail-transfer agent receives it, validates message credentials against data stored in dedicated-distributed data store 126, checks the message for viruses, checks whether or not the message falls into one or more white/black lists, and then either deletes it, puts into recipient(s) mailbox, or sends it to another internal or external mail-transfer agents for further processing. Mail-transfer agents can serve one or multiple domains, and can replace, alternate, add or delete any or all message headers based on rules retrieved from the dedicated-distributed data store.
Email-access servers may support Internet Message Access Protocol (JMAP) and Post Office Protocol (POP) protocols and provide access for clients agents (e.g., native client) to e-mail messages stored in a data store using these protocols. The Email-access servers can provide server side search and indexing features for stored messages. Each mailbox can have one or multiple owners, or be shared by an owner with others people based on access list. Email-access servers may support shared folders.

An instant-messaging server, such as instant messenger (IM) server 116, may include computer hardware and software having a data exchange module, a message handling module ("MHM"), an authentication and authorization module, one or several messenger gateway modules ("MGM"), and a presence manager module ("PMM"). In the present example, the instant messenger maintains presence information for all system users. The presence information is generally maintained by assigning the user a particular presence state, such as "busy," "away," "free," or "do not disturb." The state used may be selected by the user or may be assigned based on the location of the user as inferred from the user's activities (or lack of activities) on the PC or desk phone. Instant-messaging servers may support Extensible Messaging and Presence Protocol (XMPP) protocol or other similar protocol, and provide gateways to external instant messenger systems and networks, including, but not limited to, ICQ™, AIM™, MSN™ and Jabber™. When a new instant message arrives, the client agent displays a notification to the end user. Client computers may store local copies of all or some instant messages and all or some address books so that they can be available for off-line usage. Client computers can automatically check for updates of software, messages and address book(s), e.g., each time it goes online. An instant message generally includes the sender's signature and is uniquely identifiable.

A Private Branch Exchange (PBX) server, such as PBX server 118, directs telephone communication to and from end users. For example, incoming calls having call information indicating a user's extension may be sent by the PBX to the user's desk phone. Outgoing calls from the desk phone are directed according to the number dialed. The PBX provides additional functions, including call forwarding and conference calling. A PBX may include a call-routing and-registration server. A call-routing-and-registration server includes computer hardware and software having a call routing module ("CRM"), a data exchange module, phone registration module ("PRM"), an authentication and authorization module, a phone registration module, and a messaging module.
In addition, a PBX server 118 may include a voicemail server 118A to provide voicemail services to users. A voicemail server 118A includes computer hardware and software having an interactive voice response module, a call processing module, a data exchange module, a mail access module, mail transfer module, a messaging module, and an authentication and authorization module. Voicemail server 118A includes computer hardware and software having a data exchange module, a mobile data exchange module ("MDE"), and an authentication and authorization module.

In some examples, a PBX server 118 may include a hunt-group server to a hunt-group server 118B. A hunt-group server 118B includes computer hardware ("CH") and software having an interactive voice response ("IVR") module, a call processing module ("CPM"), a data exchange module ("DEM"), a hunt group process module ("HGM"), a messaging module ("MM"), and an authentication and authorization module ("AAM").

PBX server 118 receives and sends phone calls from and to client phones, phone gateways, or other devices, such as, e.g., the aforementioned voicemail servers 118A or hunt-group servers 118B using the call routing-and-registration servers. Call-routing-and-registration servers retrieve phone call related information from a dedicated-distributed data store (data store) 126, send notifications to client computers using the aforementioned instant-messaging servers 116, and route and connect phone calls based on the information from the dedicated-distributed data store 126 and on commands received from the client computers, client phones and/or phone gateways, as also noted in the related patent applications. PBX servers 118 provide typical known functionality, including, but not limited to, hunt groups ("HG"), automatic call distribution, call waiting, caller id, etc., as is understood in the art. Hunt group management and call distribution may be done based on instant-messaging servers presence information.

It should be noted that PBX server 118 may operate with legacy phone hardware, such as Plain Old Telephone Service Systems (POTS systems), and is not limited to working with Voice over Internet Protocol (VoIP) type communication. This has the advantage that new phone hardware (such as a new handset) is not required.

A file manager server, such as file manager server 120, provides access to data files stored in the aforementioned data store 126. A file manager 120 may include computer hardware and software having a data access module ("DAM"), an authentication and authorization module, and a data exchange module. In general, data associated with various
communication formats may be stored in the data store 126 and may be retrieved from the data store using the file manager server 120.

An address book server, such as the aforementioned address book server 122, maintains an address book so that requests for address information are directed to the address book server. Also, all updating of address information is done through the address book server 122. In the present example, the address book contains entries that have email, telephone and instant messenger information for individuals. Thus, the address book can be used for various communication formats including email, telephone and instant messenger. It should, of course, be understood that various other types of entries with further information can be placed in the address book and accessed by the address book server 122.

A calendar/tasks server, such as the aforementioned calendar server 124, maintains a calendar so that requests for calendar information are directed to the calendar/tasks server and updates of the calendar are performed through the calendar/tasks server. Client agents provide the ability to select people from the address book to be displayed in the instant messenger roster (so-called presence information). This includes both internal users of the system and external contacts, such as, for example, ICQ™ users. Users of different instant messaging systems are marked with different presence icons in the roster. Users can group entries in a roster in any desired way. A client agent also can provide the ability to create chat rooms, invite people to chat rooms, and make chat rooms public or private. They can also provide the ability to make the user visible or invisible to one, several or all other users. They can also display counterpart activity during the conversation.

A dedicated-distributed data store (data store), such as data store 126, includes data storage hardware, which could be a computer hard drive, flash drive, network addressable storage ("NAS") or other devices from Sun Inc. or other vendor data stores, and any other data storage device and data management software, i.e., data-base management systems, file systems, etc. Account management and server management information may be stored in the data store.

The above-mentioned servers could utilize the same physical computer hardware or different physical computer hardware that can be installed in one or several locations. Any of the above-mentioned servers could be installed alone or together with any other servers (i.e., share or not share the same computer). In case of a distributed installation, i.e., on several different computers, each server should be able to access all other servers in the system using, for example an IP-based protocol.
Corresponding to the servers shown, native client 108 performs various functions, including communicating by email, instant messenger and telephone, accessing files, address information and calendar information. In this example, these functions are carried out using a single application, which presents the user with communication options in a single integrated manner. Thus, communication according to different formats, including email, telephone and instant messenger, are integrated in a way, such that a user can switch from one format to another without switching from application to application. Several advantages may be achieved by such integration.

Certain resources may be shared between different communication formats that in prior systems generally required separate resources. For example, a common address book may be maintained for email, telephone and instant messenger communication (and other formats also, if provided). Thus, when an entry is found in the address book, a user has a choice of contacting the person in at least three different ways. These options may be provided so that a user can select an option by a single command, such as a single mouse-click, a single key stroke or a drag and drop operation (e.g., dragging a person's name to a particular screen location). Also, when the user receives a communication according to any of these formats, a reply may be initiated according to any of the formats with a single command. For example, where the user receives an email from someone in the address book, the user may reply by email, telephone or instant messenger. Selecting a telephone reply may cause a call to be placed by the native client 108, through the PBX 118. Similarly, when an instant messenger communication is received, a reply may be sent by email, telephone or instant messenger. When a telephone communication (telephone call or voicemail) is received, a reply may be by telephone, email or instant messenger. The User Interface (UI) of native client 108 may present these various options on a visual display so that the user can select anyone of them with a single command (e.g., a single mouse-click or a single key stroke).

Because communication in such an integrated communication system may include multiple formats, it may be convenient to integrate histories of such communication in a single log. A common communication log may be maintained that includes email, telephone and instant messenger communication. Thus, a user who wishes to review their correspondence with an individual can view, in a single list, all communications with that individual including email, telephone and instant messenger communication.

Management of communication with a user may be integrated so that information gained from one communication format is used to manage other communication
formats. Presence information obtained from instant messenger communication may be shared and used to select an appropriate management scheme for other communications also. For example, where instant messenger communication indicates a presence state of "away," a user's telephone calls may be forwarded to the user's cell phone or to voicemail. The user's email may be sent to another location or to a mobile device, such as a Blackberry or PDA.

Management of a user's accounts may also be integrated so that instead of separately setting up an email account, an instant messenger account and a telephone account, a single configuration automatically provides all three. FIGURE 1 shows a single control panel 128 for controlling server management, including control of the aforementioned servers, including the email server 114, instant messenger server 116, PBX server 118, file manager server 120, address book server 122, and the calendar/tasks server 124. Control panel 128 allows a user to be given an integrated account that provides email, telephone and instant messenger communications. Authorization, authentication and accounting may be performed together for all communication formats. The user's access privileges may also be configured through the control panel so that the user does not necessarily have access to all communication formats, or to all stored files.

In order to provide an integrated communication system, the servers shown communicate with each other and with a native client 108. Communications between components may or may not be encrypted according the level of security that is desired. Some of the main interactions between components are summarized in the table of FIGURE 2, where each row shows how the components listed in the column headings support the component of the specified row. For example, the first row deals with email and how other components interact with email to provide greater integration. The following description of relationships between components set forth in connection with FIGURE 1 and the accompanying text follows the table of FIGURE 2.

EMAIL

With reference now to FIGURE 2, particularly the first row thereof dealing with email functionality pursuant to the teachings of the present invention, email provides an option to reply by instant messenger (also telephone) and instant messenger may be used by the email component to send internal notifications and to obtain presence information. For example, presence information provided by the instant messenger system may be used to select a management scheme for dealing with incoming emails.
Email server 114 uses the address book/directory, e.g., on the address bookserver 122, to authenticate and authorize users. Email server 114 also provides the user with the ability to store and modify mail lists and mail rules that are stored in the address book. Email server 114 provides the user with the ability to initiate an email from the address book, for example, by clicking (or double clicking) the email address within an entry in the address book.

The email component of native client 108 provides the option of replying to an email by telephone. In one example, a typical "reply" button that is provided when an email is displayed is replaced with three buttons, "reply email," "reply IM" and "reply by phone."

Alternatively, these options may be provided in a drop-down menu or otherwise.

Email server 114 uses the data store 126 to store metadata associated with email communications and to store message data. A user can use the email component of native client 108 to generate tasks or events in the calendar. Finally, a user can use the email component of native client 108 to store attachments that are received with incoming emails using the file manager.

**INSTANT MESSENGER**

With reference again to FIGURE 2, particularly the second row thereof, dealing with instant messaging functionality, instant messenger messages may be stored as emails within a common log. Thus, email may be chosen as a common format for storage, though in other cases a different format may be chosen. A user can reply to an instant messenger with an email (generally, using a single command).

The instant messenger server 116 may refer to the aforementioned address book, through the address book server 122, to authenticate users and to keep roster, presence and subscription information. The user can initiate an instant message from the address book, for example, by clicking on the IM portion of a particular address book entry. When a user receives an instant messenger message, they can respond via a phone call.

Internal metadata associated with instant messenger messages and also message data are stored in data store 126. Each conversation using the instant messaging server 116 can be stored based on number of preset rules (such as timeout, topic etc.) in same way email is stored, and can be displayed in a separate folder in one or more of the aforementioned client agents in a way that end users of the system would have access to their
instant message history, similarly to the way to email is accessed, i.e. with ability to search, sort etc.

A user can generate a calendar task or event from instant messenger or from instant messenger history. A user can share send and receive files through instant messenger.

Such files are sent to or from the file manager.

ADDRESS BOOK/DIRECTORY

With further reference to FIGURE 2 of the Drawings, particularly the third row thereof, dealing with address book and directory functionality, address book server 122 uses instant messenger to send updated notification and address card information. The address book data are stored in the data store 126. The user list, access control list, address book(s) and internal metadata associated with the address book(s) are stored in the data store 126, so that they can be retrieved by client agents or other system components via the data-access-servers using one or a combination of data access protocols ("DAP"), as is understood in the art.

PBX

With further reference to FIGURE 2, particularly the fourth row thereof, dealing with PBX functionality, PBX server 118 uses email to distribute, store and access voicemail, recorded calls and call history. Thus, a user can forward recorded calls, voicemail and call history events via email or reply via email to a phone call. This gives a user the ability to distribute a voicemail or call history to a wide group.

PBX server 118 uses instant messenger for a telephone control mechanism used for hunt group management. A user can reply to a telephone call by instant messenger (or email).

PBX server 118 uses the data store 126 to store call routing information and internal technical data. Voicemail messages are stored in the dedicated-distributed data store 126 in a fashion similar to the way email messages are stored. Voicemail servers can retrieve voice mail messages via email-access servers, and send them using the mail transfer module. Client computer and/or mobile-client software can access voicemail messages via email-access servers. Email-access servers can perform same operations with voicemail messages as with email messages or archived instant messages.
PBX server 118 uses the calendar of the aforementioned calendar server 124 to manage advanced call distribution, such as schedule dependent call forwarding. For example, if a call is received for an individual, the PBX server 118 may determine from the calendar that the person is on vacation and redirect the call to another individual.

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CALENDAR/TASKS

With additional reference to FIGURE 2, particularly the fifth row thereof (the "Data Store" row not being addressed), dealing with calendar and task functionality, calendar server 124 uses email to send invitations and tasks. For example, invitations to a meeting may be sent by email to all those invited to attend. A user can generate email from a calendar event or task to provide notification of the event or task. Instant messenger communications may also be generated from a calendar event or task so that the communication is used for event or task notification.

Calendar server 124 may use the aforementioned address book to authenticate and authorize users. Calendar server 124 can invite individuals to an event or assign tasks to individuals based on information in the address book. Calendar server 124 may use the PBX server 118 for event or task notification.

Calendar data, task data, access lists and internal metadata may all be stored in data store 126 so that they are accessible by client computers and/or mobile-client software via the data-access-servers and/or the email-access servers. Client computer and/or mobile-client software can keep local copies of calendar events and tasks for offline usage.

FILE MANAGER

With final reference to FIGURE 2, particularly the sixth and final row thereof, dealing with file manager functionality, files may be shared by sending email invitations to recipients, who then access the shared file through the aforementioned file manager server 120.

Files may also be shared by sending IM invitations to recipients who then access the shared file through the file manager server 120. The address book of address book server 122 may be used to authenticate users who are attempting to access shared files through file manager server 120.

File manager server 120 uses the data store 126 to store files. Client computer and/or mobile-client software have access via file-sharing servers to the computer files stored in the data store 126, and can synchronize files across several computers or mobile devices.
which belong to one person or a group. Groups can be defined based on access list stored in
the dedicated-distributed data store 126 and retrieved by file-sharing servers during an
authorization process via data-access-servers.

The above listing illustrated and described in connection with FIGURE 2 is not
intended to be an exhaustive list of all interactions between the various components set forth
in FIGURE 1 and elsewhere in this specification. It should, therefore, be understood that
additional interactions may also occur.

A User Interface (UI) provided to a user by the native client 108 may be
implemented in a number of ways. Although illustrative examples of possible UI formats are
shown in FIGURES 3-5, different formats may also be used to provide the same functionality
or additional functionality to a user, as is understood in the art.

With reference now to FIGURE 3 of the Drawings, there is illustrated therein a
screenshot of a display provided to a user by a native client 108. The screenshot, generally
designated by the reference numeral 300, shows a common address book that contains entries
for employees of a business. Each entry gives telephone, email and instant messenger
information for the employee. For example, the highlighted entry 350 shows two business
phone numbers, two home phone numbers, an email address and an instant messenger option
for a particular employee (where the actual information is omitted in the figure for privacy
reasons). A telephone call to anyone of the employee's telephone numbers may be initiated by
clicking on the telephone number in the employee's entry. Similarly, an email may be
initiated by clicking on the employee's email address. An instant message to the employee
may be initiated by clicking on the IM option in the employee's entry. Thus, the common
address book, a portion of which is shown in FIGURE 3, allows communication with a person
listed in the address book by telephone, email or instant messenger, and anyone of these
communications may be initiated by a single command without having to open another
application or cut and paste an address from elsewhere.

With reference now to FIGURE 4, there is illustrated therein an example of a
common log, generally designated by the reference numeral 460, that contains a record of
communication according to three different communication formats. In general, a log may be
sorted according to different parameters. A common log may contain all communications
according to all communication formats. For example, the log may include a telephone
communication history for both telephone conversations that were terminated in a client
device and a telephone. A common log may be sorted to be in chronological order or by
name. In the present example, common log 460 is searched to show only correspondence between the user and a particular contact in the address book on a particular day, but many other criteria are possible. Common log 460 includes a telephone communication 462 (a voicemail) at 9.00. This is followed by an instant messenger exchange 464 starting at 10.00, an email 466 at 11.00 and an email 468 at 11.30. Thus, a complete record of correspondence with this contact is provided to the user on one page. While the example of FIGURE 4 shows email, instant messenger and telephone communication, a user may choose to show only one of these communication formats, or may choose to show two of these formats but not the third.

In one embodiment, a user can configure the system to store the content of the communication in addition to the communication record. For example, the user may configure the PBX to store all of his or her telephone conversation automatically in the data store 126. Alternatively, the users may initiate a recording of a conversation on demand. This may involve selecting a recording button on the user display to begin recording the conversation and selecting of the same button or another button to stop recording. Generally, the content of such recording may be available through the log.

A user may create, modify, or eliminate one or more tags associated with a communication record in the log 460 for further identification or classification. For instance, the user may choose to add a subject title to telephone conversations where one did not exist before or modify a system-generated subject title. This will enable the user to sort her or his telephone conversations by user-defined subject titles in addition to any other tags that may have been generated automatically by the system. Thus, allowing, for example, the user to search through telephone conversation recordings tags quickly and conveniently.

With reference now to FIGURE 5 of the Drawings, there is illustrated therein an example of an instant messenger communication, generally designated by the reference numeral 500, that includes the option to respond by email or telephone. In particular, any individual that is listed as a participant in the instant messenger session may be selected, and a pop-up menu, generally designated by the reference numeral 570, provides the option to email or telephone this individual. The screenshot of FIGURE 5 shows a pop-up menu 570 associated with a participant in an IM discussion. The pop-up menu includes an option 572 to initiate an instant message, another option 574 to initiate an email and yet another option 576 to initiate a phone call to reply. The common log, such as the aforementioned log 460 in
FIGURE 4, would retain a record of such communication so that a clear record of correspondence via multiple communication formats is available.

The sharing of presence information in the present system is achieved using an instant messenger communication, as shown in FIGURE 6. In particular, the aforedescribed email server 114 and PBX server 118 may obtain presence information regarding the user from the instant messenger server 116. This information may be maintained by the instant messenger server 116, or the instant messenger server 116 may request presence information from the native client 108 when the instant messenger server 116 receives a request for this information. Email server 114 may have alternative email handling schemes that are selected according to the presence information received from the instant messenger server 116. Generally, presence information is provided as a presence state. A user is assigned a presence state from a finite list of possible presence states at all times. The list of presence states may be user-defined or per some default scheme. For example, when an email is received by email server 114, the email server 114 may check the presence state of the user. In FIGURE 6, the user has a presence state that indicates that the user is "away". In response to determining that the user's presence state is "away," email server 114 may choose a scheme that includes forwarding the email to another address (for example, another employee who is covering for the absent user). Email server 114 may also send a reply to the email indicating that the user is away. These options may be configured by the user so that email is directed as the user requests for various presence states. Similarly, PBX server 118 may have various schemes for dealing with telephone communications (both duplex telephone calls and voicemail). An appropriate scheme may be chosen according to presence information obtained from the instant messenger server 116. For example, where the user's presence state is "away," PBX server 118 may send incoming calls to voicemail as shown, or may forward the calls to another user or to a cell phone. Thus, presence information obtained by the instant messenger is used to manage communication according to other communication formats also.

It should, of course, be understood that the particular embodiments of the invention described above do not limit the scope of the invention, since these embodiments are illustrations of several preferred aspects of the invention. Any equivalent embodiments are intended to be within the scope of this invention. Indeed, various modifications of the invention in addition to those shown and described herein, such as alternate useful combinations of the elements described, are apparent to those skilled in the art from the description set forth herein. Such modifications are also intended to fall within the scope of
the appended claims. In the following (and in the application as a whole), headings and legends are used for clarity and convenience only.

Although specific features of the invention are shown in some drawings and not in others, this is for convenience only as each feature may be combined with any or all of the other features in accordance with the invention. The words "including", "comprising", "having", and "with" as used herein are to be interpreted broadly and comprehensively and are not limited to any physical interconnection. Moreover, any embodiments disclosed in the subject application are not to be taken as the only possible embodiments. Other embodiments will occur to those skilled in the art and are within the following claims.

All patents, patent applications, articles, books, specifications, other publications, documents and things referenced herein are hereby incorporated herein by this reference in their entirety for all purposes. To the extent of any inconsistency or conflict in the definition or use of a term between any of the incorporated publications, documents or things and the text of the present document, the definition or use of the term in the present document shall prevail.

Although the various aspects of the present invention have been described with respect to certain preferred embodiments, it is understood that the invention is entitled to protection within the full scope of the appended claims.
What is claimed is:

1. A unified collaboration communication system comprising:
   a plurality of servers, said servers in communication with a client device, said plurality of servers comprising an email server, an instant messenger server and a Private Branch Exchange (PBX) server;
   presence means for receiving presence state information about a user; and
   handling means, in response to the receipt of said presence state information, for handling communications through said plurality of servers, a handling scheme for a respective one of said plurality of servers being selected from a plurality of handling schemes.

2. The system according to claim 1, wherein said presence state information is sent to said instant messenger server from said client device.

3. The system according to claim 2, wherein said handling means selects a telephone handling scheme for the PBX server and an email handling scheme for the email server.

4. The system according to claim 1, further comprising:
   log means for providing a log of communications with said user.

5. The system according to claim 1, wherein the presence state information is selected from a plurality of possible presence states.

6. The system according to claim 1, wherein a current presence state of said presence state information indicates user absence, and wherein said current presence state causes the PBX server to forward a telephone call to another client device or direct the telephone call to a voicemail system.

7. The system according to claim 1, further comprising:
   an address book server in communication with the client device, said address book server providing address information from a common address book, said common address
book comprising email address information, instant messenger address information and phone number information.

8. The system according to claim 1, wherein communication with said client device is a secured communication.

9. A method for unified collaboration communications, comprising:
providing a user with a client device, said client device in communication with a plurality of servers, said plurality of servers comprising an email server, an instant messenger server and a Private Branch Exchange (PBX) server;
determining a presence state of said user; and
selecting, in response to the determination of said presence state of said user, a handling scheme for handling communications through said plurality of servers, a handling scheme for a respective one of said plurality of servers being selected form a plurality of handling schemes.

10. The method according to claim 9, wherein said presence state of said user is one of a plurality of possible presence states.

11. The method according to claim 9, wherein said handling means selects an instant message handling scheme for said instant messenger servers receiving incoming instant messages directed to said user.

12. The method according to claim 9, wherein said handling means selects an email handling scheme for said email server receiving incoming emails directed to said user.

13. The method according to claim 9, wherein said handling means selects a telephone handling scheme for said PBX server receiving incoming telephone calls directed to said user.

14. The method according to claim 9, further comprising:
logging a common log of communications with said user.
15. The method according to claim 9, wherein if the determined presence state of said user is "away", the handling scheme comprises directing telephone calls directed to the user to another user, to a mobile telephone, or to a voicemail system.

16. The method according to claim 9, further comprising:
   maintaining a common address book, said common address book comprising email, telephone and instant messenger address information.

17. The method according to claim 16, further comprising:
   determining access privileges of a user from said common address book.

18. The method according to claim 9, further comprising:
   providing encryption and decryption of communications with said user.

19. The method according to claim 9, further comprising:
   in response to receiving a communication by email, instant messenger or telephone, providing said user with options to initiate a reply by email, instant messenger or telephone, each option selectable by a single command.

20. A client device comprising:
   presentation means for presenting information to a user on a display device;
   application means providing communication capability pursuant to a plurality of communication formats, said communication formats comprising email, instant messenger and telephone;
   communication means for communicating with a user, in response to receipt of an incoming communication pursuant to one of said plurality of communication formats, said client device presenting to said user on said display device a plurality of reply options, each said reply option being in one of said plurality of communication formats, said user selecting by a single command a reply in a communication format different than the communication format of said incoming communication; and
   presence means for receiving presence state information about said user, and facilitating handling communications with said user from a plurality of handling schemes.
<table>
<thead>
<tr>
<th>E-mail</th>
<th>IM</th>
<th>Address Book / Directory</th>
<th>PBX</th>
<th>Data Store</th>
<th>Calendar/Tasks</th>
<th>File Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can reply to e-mail via IM, also used to send internal notifications and get presence information.</td>
<td>Used to authenticate and authorize users, store and modify mail list and mail rules, user can initiate e-mail from the address book.</td>
<td>User can reply to e-mail via phone call.</td>
<td>Stores internal metadata and message data.</td>
<td>User can generate Task or Event from e-mail.</td>
<td>User can store attachment in the file store.</td>
<td></td>
</tr>
<tr>
<td>Stores history data as e-mail messages, user can reply to IM via e-mail.</td>
<td>XXXX</td>
<td>Used to authenticate and authorize users, keep roster, presence and subscription information, user can initiate IM from the address book.</td>
<td>User can reply to IM via phone call.</td>
<td>Stores internal metadata and message data.</td>
<td>User can generate Task or Event from IM or IM history.</td>
<td>User can share, send and receive files.</td>
</tr>
<tr>
<td>Used to send notification and updated address card information.</td>
<td>XXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used to distribute, store and access voicemail, recorded calls and call history, user can forward recorded calls, voicemail and call history events via e-mail or reply via e-mail to phone call.</td>
<td>Used for phone control mechanism, used for hunt group management, user can reply to phone call via IM.</td>
<td>Used to authenticate and authorize users, user can initiate call from the address book.</td>
<td>XXXX</td>
<td>Used to store call routing information, internal technical data.</td>
<td>Used to manage advanced call distribution (i.e. schedule dependant call forwarding etc).</td>
<td></td>
</tr>
<tr>
<td>Calendar/Tasks</td>
<td>Used to send invitations and tasks, user can generate e-mail from calendar event or task, used for event and/or task notification.</td>
<td>User can generate IM from calendar event or task, used for event and/or task notification,</td>
<td>Used to authenticate and authorize users, user can invite others to event or assign task based on address book.</td>
<td>Used for event and/or task notification.</td>
<td>Stores calendar and task data, access lists and internal metadata.</td>
<td></td>
</tr>
<tr>
<td>User can share files via e-mail, used for sharing invitations.</td>
<td>User can share files via IM, used for internal notifications</td>
<td>Used to authenticate and authorize users, store access lists.</td>
<td></td>
<td>Used to store data.</td>
<td>XXXX</td>
<td></td>
</tr>
</tbody>
</table>
FIG. 4

Log

11.30 E-Mail 468
11.00 E-Mail 466
10.04 IM
10.03 IM
10.02 IM
10.01 IM
10.00 IM
9.00 Phone - Voicemail 462

460
464
FIG. 6