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(54) **THIN INSTANT MESSAGING PROXY  
INTERFACE WITH PERSISTENT SESSIONS**

**Related U.S. Application Data**

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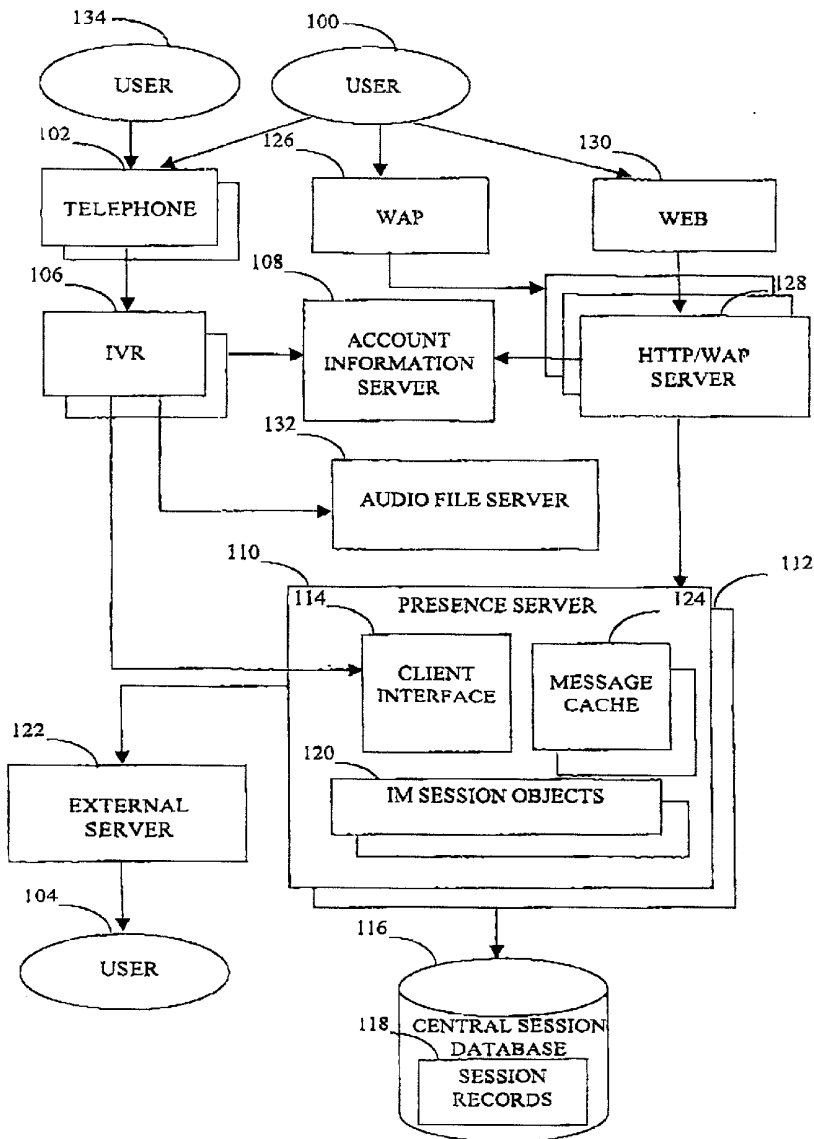
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(57) **ABSTRACT**

A method and system for instant messaging and includes enabling a thin client to employ a presence server for initiating a communications channel between at least first and second instant messaging users; and conducting instant messaging along the communications channel between the instant messaging users.

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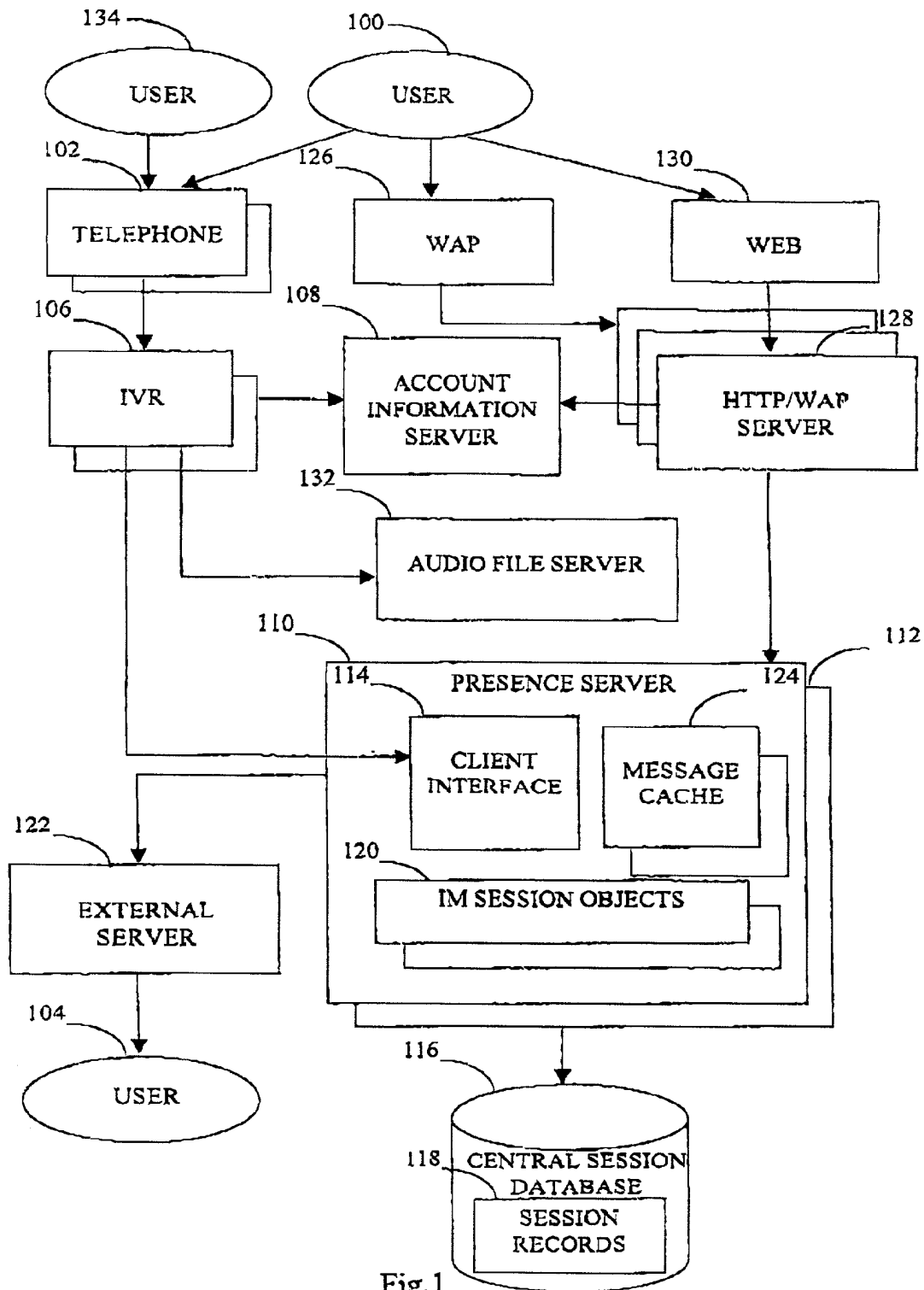


Fig. 1

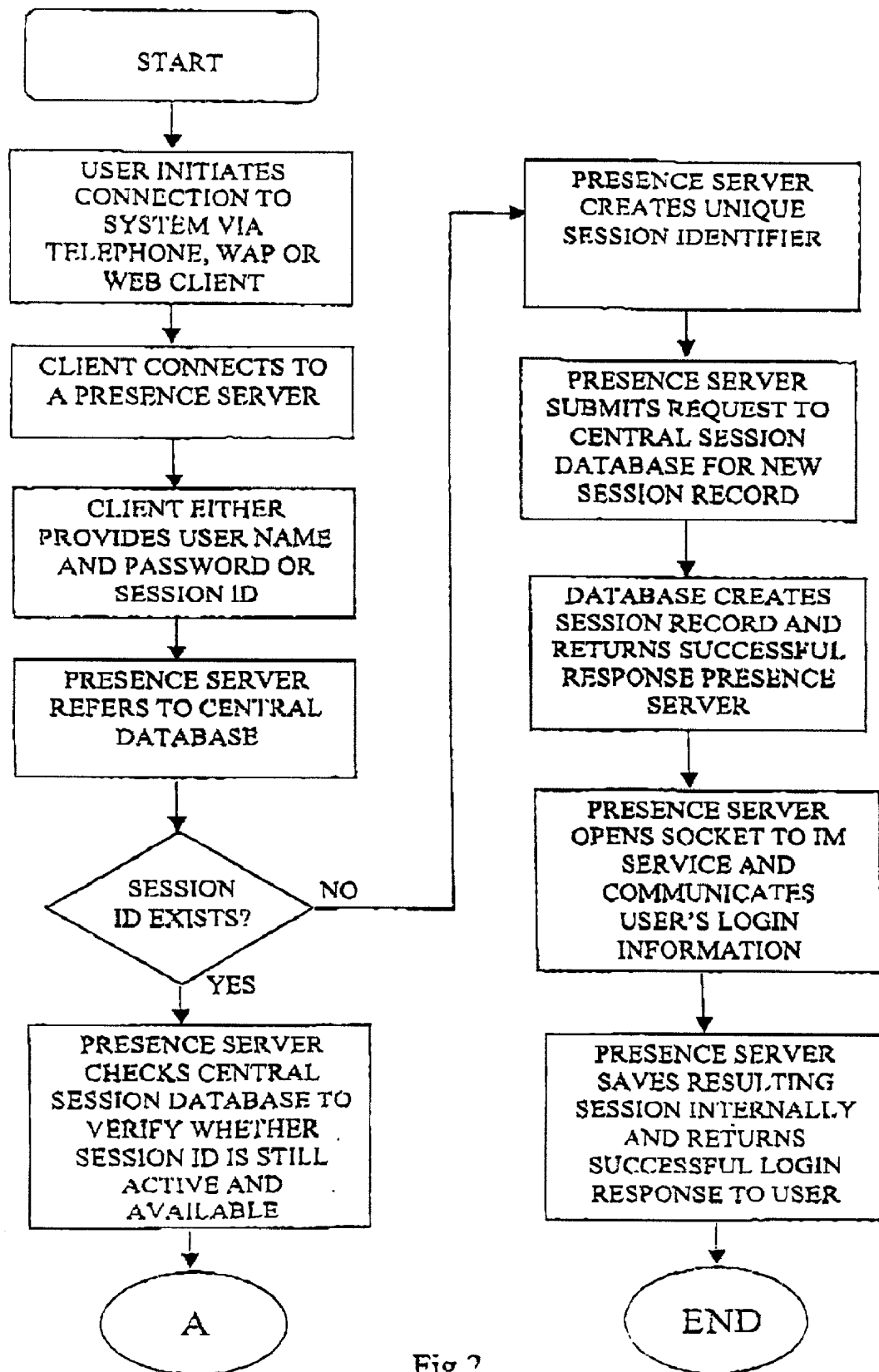


Fig.2

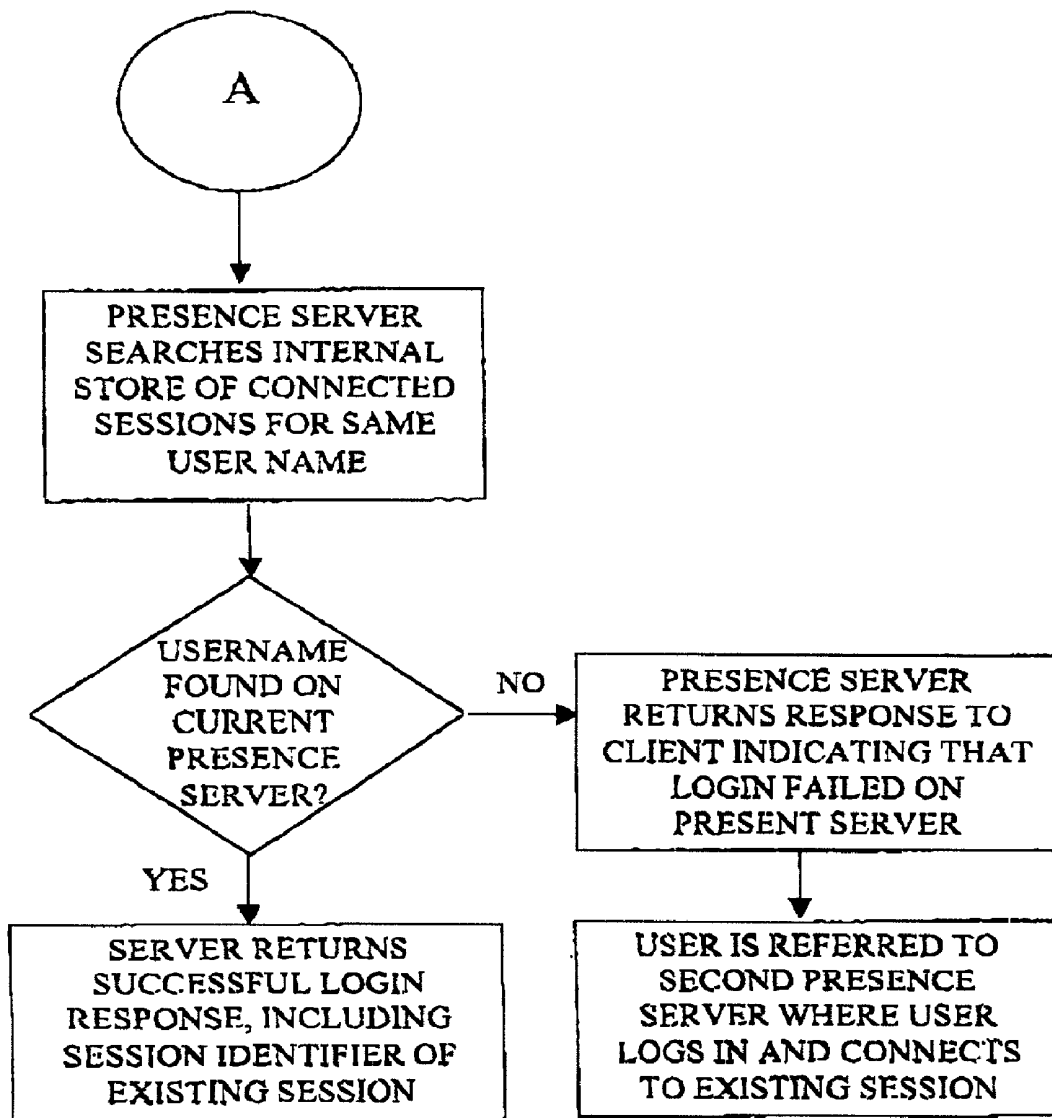


Fig.3

## THIN INSTANT MESSAGING PROXY INTERFACE WITH PERSISTENT SESSIONS

### FIELD OF THE INVENTION

[0001] The present invention relates to a thin instant messaging proxy interface.

### BACKGROUND OF THE INVENTION

[0002] One of the most widely used applications on the Internet and a popular means of communication is Instant Messaging (IM). IM has exploded in popularity in the past few years as an alternative to e-mail. It is a quick and efficient way of maintaining regular contact and communicating on a worldwide scale, both for business and personal use.

[0003] An instant message is similar to an e-mail message in that it is transmitted via the Internet and may contain formatted or unformatted text. IM differs from ordinary e-mail in the immediacy of the message transmission. The immediacy of the message transmission enables a real time exchange of messages.

[0004] IM enables a user to ascertain whether a friend or co-worker is connected to the Internet and whether such a person is available for a messaging 'session'.

[0005] There are presently a large number of protocols available for IM, such as AOL's AIM®, AOL's ICQ® and Microsoft's MSN®. Normally all IM software used in a given messaging session must communicate through the same protocol.

[0006] IM applications generally operate in one of two modes: peer-to-peer or client-server. In the peer-to-peer mode, the communicating clients send data directly to each other, without the involvement of an intermediate server. In the client-server mode, the communicating clients send data to each other via a central messaging server.

[0007] Typically, once an IM user has provided necessary login information to the client software, the client will begin monitoring previously specified addresses, often known as a BUDDY LIST®. The client may monitor the BUDDY LIST® directly or refer the task to a server. The BUDDY LIST® may be updated in real time, as buddies sign on and sign off. The BUDDY LIST® may be stored on a messaging server, or kept directly by the IM user for peer-to-peer usage.

[0008] IM is particularly popular on platforms that can support the client software and messaging protocols. However, thin clients, such as telephones and WAP-enabled cell phones, typically cannot support the client software and messaging protocols required for IM.

[0009] Furthermore, thin clients may have difficulty maintaining session information. This is particularly evident on WAP-enabled cell phones on which each WAP request may be communicated on a different WAP server.

[0010] The ability to remain actively involved in a session, while being physically remote is discussed in U.S. Pat. No. 5,889,845 that describes a virtual presence server by which remote users can connect to their offices and various forms of communication, such as faxes, e-mails and telephone calls can be routed to the remote users.

### SUMMARY OF THE INVENTION

[0011] This invention seeks to provide a system and methodology to enable a thin client, without access to IM software, to utilize a presence server through a simple interface.

[0012] There is thus provided in accordance with a preferred embodiment of the present invention a method for instant messaging. The method includes enabling a thin client to employ a presence server for initiating a communications channel between at least first and second instant messaging users and conducting instant messaging along the communications channel between the instant messaging users.

[0013] Further in accordance with a preferred embodiment of the present invention the presence server is employed to simplify client-side connection negotiations to initiate the communications channel.

[0014] Still further in accordance with a preferred embodiment of the present invention the method also includes employing an instant messaging session object to enable non-persistent clients to maintain a session along the communications channel.

[0015] Preferably, the method also includes employing an instant messaging session object to enable non-persistent clients to maintain a session along the communications channel.

[0016] Additionally in accordance with a preferred embodiment of the present invention the enabling step includes redirecting at least one client to at least one previously opened session on at least one presence server.

[0017] Further in accordance with a preferred embodiment of the present invention the conducting step employs a first communication protocol between the first user and the presence server and employs a second communication protocol, different from the first communication protocol, between the presence server and the second user.

[0018] There is also provided in accordance with another preferred embodiment of the present invention a system for instant messaging. The system includes at least first and second communication devices and a presence server operative to initiate a communications channel between at least first and second instant messaging users via the first and second communication devices, at least one of which employs a thin client.

[0019] Further in accordance with a preferred embodiment of the present invention the presence server is operative to simplify client-side connection negotiations to initiate the communications channel.

[0020] Preferably, the presence server includes an instant messaging session object operative to enable non-persistent clients to maintain a session along the communications channel.

[0021] Additionally in accordance with a preferred embodiment of the present invention the presence server includes an instant messaging session object operative to enable non-persistent clients to maintain a session along the communications channel.

[0022] Still further in accordance with a preferred embodiment of the present invention the system for instant messaging includes a first and second communication protocols enabling communication between the presence server and the first and second communication devices.

[0023] Preferably, the first communication protocol supports redirecting at least one client to at least one previously opened session on at least one presence server.

[0024] Further in accordance with a preferred embodiment of the present invention the first communication protocol supports redirecting at least one client to at least one previously opened session on at least one presence server.

[0025] Preferably, the first and second communication protocols are different from each other.

[0026] Still further in accordance with a preferred embodiment of the present invention the communication devices include a thin client selected from the group consisting of a WAP client, a WML client, an HTML client or an HDML client.

[0027] Moreover in accordance with a preferred embodiment of the present invention the presence server includes at least one session object storing session information.

[0028] Further in accordance with a preferred embodiment of the present invention the system also includes an audio file server associated with the presence server.

[0029] Still further in accordance with a preferred embodiment of the present invention the system also includes an IVR operative to interface between a telephone and the presence server.

[0030] Additionally in accordance with a preferred embodiment of the present invention the system also includes an account information server for validating user access to the presence server.

[0031] Preferably, the presence server includes a client interface interfacing with the IVR.

[0032] Preferably, the presence server includes a message cache.

[0033] Further in accordance with a preferred embodiment of the present invention the system also includes an HTTP/WAP server through which a web user may be connected to the presence server.

[0034] Preferably, the system also includes an external server enabling communication between the presence server and an instant messaging service.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0035] The present invention will be more fully understood and appreciated from the following detailed description, taken in conjunction with the drawings in which:

[0036] **FIG. 1** is a simplified block diagram illustrating the structure and operation of a thin instant messaging proxy interface enabling persistent sessions, constructed and operative in accordance with a preferred embodiment of the present invention; and

[0037] **FIGS. 2 and 3** are simplified flowcharts illustrating the operation of creating an IM Session Object, in accordance with a preferred embodiment of the present invention.

#### DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0038] The present invention provides a system and methodology to enable a thin client without access to IM software, to utilize a presence server through a simple interface.

[0039] In a preferred embodiment of the present invention, the client may utilize the presence server to simplify the client-side connection negotiations to initiate a communications channel between IM users.

[0040] Additionally, the present invention enables non-persistent socket clients, such as HTTP/1.0 clients, to maintain a session through the use of an IM Session Object.

[0041] Moreover, to enable the system to scale to a large number of concurrent users, the present invention may redirect clients to previously opened sessions on various presence servers.

[0042] Reference is now made to **FIG. 1**, which is a simplified illustration of the system of the present invention when accessed through a client such as a telephone, WAP or Web client. Reference is also made to **FIGS. 2 and 3**, which are simplified flow charts, illustrating the process of creating an IM Session Object in accordance with a preferred embodiment of the present invention.

[0043] In one embodiment of the present invention, a User **100** may employ a Telephone **102** to communicate an IM message to a second IM User **104** via IM protocols. The User **100** may provide login information such as a username and password or a session ID, obtained from a previous session, via the Telephone **102** to an IVR **106**. The IVR **106** may communicate the login information to an Account Information Server **108** to validate access to the system.

[0044] Next, the IVR **106** may connect to a Presence Server **110** through a Client Interface **114** and communicate the login information. It is a particular feature of the present invention that the IM protocol between the Presence Server **110** and the User **100** may be different from the IM protocol between the Presence Server **110** and the second User **104**.

[0045] The IVR **106** may create a persistent socket connection to the Presence Server **110** for the duration of the phone call. The Presence Server **110** may connect to a Central Session Database **116** to verify whether a user has already logged in with the same login information. The Central Session Database **116** maintains a repository of references to active sessions, in a Session Records **118**.

[0046] If the Central Session Database **116** reports that the login information for the User **100** is not listed in an existing IM Session Object **120**, the Presence Server **110** may create a new IM Session Object **120**, and submit a request to the Central Session Database **116** for a new Session Record **118** to reference the new IM Session Object **120**. The Session Record **118** may contain the username, the session identifier and the IP address of the Presence Server **110**.

[0047] Alternatively, if the Central Session Database **116** reports that the login information is listed in the Session Record **118**, the Presence Server **110** may use the Central Session Database **116** to ascertain whether the Session Record **118** references a session on the same Presence Server **110**. If the IP address of the Session Record **118** refers to the same Presence Server **110**, the Presence Server **110**

may search the internal store of IM Session Objects **120** for an IM Session Object **120** with the same login information.

[0048] If the IM Session Object **120** is not found, the Presence Server **110** may delete the Session Record **118** in the Central Session Database **116** and the Presence Server **110** may create a new IM Session Object **120** and register the session in the Central Session Database **116**.

[0049] Next, the Presence Server **110** may open a socket to an IM service on an External Server **122** and the Presence Server **110** may communicate the login information of the User **100** to the External Server **122**. If the login succeeds, the Presence Server **110** may save the resulting session information within the IM Session Object **120** for future reference.

[0050] Alternatively, if the Presence Server **110** finds the IM Session Object **120**, no further login is required and the Presence Server **110** returns a successful login response, including a reference to the IM Session Object **120** of the existing session.

[0051] If the IP address of the Session Record **118** refers to a different Presence Server **112** than the current Presence Server **110** the IVR **106** is attempting to use, the Presence Server **110** may return a response indicating that the login attempt failed on that server. The Presence Server **110** may add a referral, such as an IMAP-style referral (see Request For Comment 2221 <http://www.cis.ohio-state.edu/egi-bin/rfc/rfc2221.html>), to the second Presence Server **112**, where the User **100** may login and be connected to the existing IM Session Object **120**.

[0052] Once the User **100** has successfully logged in, the User **100** may transmit messages to the second User **104** in the following manner. User **100** may compose a message and communicate the message to the IVR **106**. The IVR **106** may communicate the message, with a reference to the IM Session Object **120**, to the Presence Server **110**. After retrieving the IM Session Object **120**, the Presence Server **110** may transmit the message to the second User **104** via the External Server **122**. It should be noted that the Presence Server **110** does not have to renegotiate a session with the External Server **122**. It is a particular feature of the present invention that the Presence Server **110** may maintain an active session with the External Server **122**, through an IM Session Object **120**, even though the User **100** may have disconnected in the interim from the Presence Server **110**.

[0053] Should the User **104** initiate a message, either in the form of a reply or as a new message, the message may be transmitted through the External Server **122** to the Presence Server **110**. If the IM Session Object **120** of the User **100** is still connected to the External Server **122**, the message may be received and deposited in a Message Cache **124** within the Presence Server **110**. For each IM Session Object **120**, there may be an associated Message Cache **124**. Should subsequent interactions between the User **100** and the Presence Server **110** occur, all messages stored in the Message Cache **124** may be relayed.

[0054] In an alternative embodiment of the present invention, the User **100** employs a WAP-enabled telephone **126** to communicate with the second User **104**. The User **100** wishing to communicate using instant messages may connect and communicate login information to a HTTP/WAP Server **128**. The HTTP/WAP Server **128** may communicate

the login information to the Account Information Server **108** to validate access to the system. The HTTP/WAP Server **128** may communicate the login information to the Presence Server **110**. The Presence Server **110** may connect to the Central Session Database **116** to ascertain whether the User **100** has already logged in with the same login information. The remainder of the functionality may be similar to the manner previously described hereinabove.

[0055] In a further alternative embodiment of the present invention, the User **100** may employ a Web Browser **130** to communicate to a second User **104**. The User **100** may communicate through the HTTP/WAP Server **128**. The HTTP/WAP Server **128** may communicate the login information to the Account Information Server **108** to validate access to the system. The HTTP/WAP Server **128** may communicate the login information to the Presence Server **110**. The Presence Server **110** may connect to the Central Session Database **116** to ascertain whether the User **100** has already logged in with the same login information. The remainder of the functionality may be similar to the manner previously described hereinabove.

[0056] The IVR **106** may also send links to voice messages through an Audio File Server **132**. The IVR **106** may record a voice message received via the Telephone **102**, which may then be transmitted to the Audio File Server **132**. The Audio File Server **132** may encode the voice message into standard formats, such as WAV and REAL AUDIO®. The voice message may be stored on the Audio File Server **132** and the Audio File Server **132** may return a hyperlink to the voice message, which may be included in the instant message. The recipient of the instant message, User **104**, may follow the included link to retrieve the voice message from the Audio File Server **132** and the voice message may be streamed or downloaded for listening.

[0057] If the User is another IVR/ELC Messenger system user, such as a User **134**, the User **134** may hear the voice message directly through the IVR **106** via the Telephone **102**.

[0058] It will be appreciated by persons skilled in the art that the present invention is not limited by what has been particularly shown and described hereinabove. Rather the present invention includes combinations and sub-combinations of the various features described hereinabove as well as modifications and extensions thereof, which would occur to a person skilled in the art and which do not fall within the prior art.

1. A method for instant messaging comprising:

enabling a thin client to employ a presence server for initiating a communications channel between at least first and second instant messaging users; and

conducting instant messaging along said communications channel between said instant messaging users.

2. A method for instant messaging according to claim 1 and wherein said presence server is employed to simplify client-side connection negotiations to initiate said communications channel.

3. A method for instant messaging according to claim 1 and also comprising employing an instant messaging session object to enable non-persistent clients to maintain a session along said communications channel.

**4.** A method for instant messaging according to claim 2 and also comprising employing an instant messaging session object to enable non-persistent clients to maintain a session along said communications channel.

**5.** A method for instant messaging according to claim 1 and wherein said enabling includes redirecting at least one client to at least one previously opened session on at least one presence server.

**6.** A method for instant messaging according to claim 3 and wherein said enabling includes redirecting at least one client to at least one previously opened session on at least one presence server.

**7.** A method for instant messaging according to claim 4 and wherein said enabling includes redirecting at least one client to at least one previously opened session on at least one presence server.

**8.** A method for instant messaging according to claim 1 and wherein said conducting employs a first communication protocol between said first user and said presence server and employs a second communication protocol, different from said first communication protocol, between said presence server and said second user.

**9.** A method for instant messaging according to claim 3 and wherein said conducting employs a first communication protocol between said first user and said presence server and employs a second communication protocol, different from said first communication protocol, between said presence server and said second user.

**10.** A method for instant messaging according to claim 4 and wherein said conducting employs a first communication protocol between said first user and said presence server and employs a second communication protocol, different from said first communication protocol, between said presence server and said second user.

**11.** A system for instant messaging comprising:

at least first and second communication devices; and

a presence server operative to initiate a communications channel between at least first and second instant messaging users via said at least first and second communication devices, at least one of which employs a thin client.

**12.** A system for instant messaging according to claim 11 and wherein said presence server is operative to simplify client-side connection negotiations to initiate said communications channel.

**13.** A system for instant messaging according to claim 12 and wherein said presence server includes an instant messaging session object operative to enable non-persistent clients to maintain a session along said communications channel.

**14.** A system for instant messaging according to claim 13 and wherein said presence server includes an instant mes-

saging session object operative to enable non-persistent clients to maintain a session along said communications channel.

**15.** A system for instant messaging according to claim 11 and also comprising first and second communication protocols enabling communication between said presence server and said first and second communication devices.

**16.** A system for instant messaging according to claim 13 and also comprising first and second communication protocols enabling communication between said presence server and said first and second communication devices.

**17.** A system for instant messaging according to claim 15 and wherein said first communication protocol supports redirecting at least one client to at least one previously opened session on at least one presence server.

**18.** A system for instant messaging according to claim 16 and wherein said first communication protocol supports redirecting at least one client to at least one previously opened session on at least one presence server.

**19.** A system according to claim 15 and wherein said first and second communication protocols are different from each other.

**20.** A system according to claim 16 and wherein said first and second communication protocols are different from each other.

**21.** A system according to claim 11 and wherein said communication devices includes a thin client selected from the group consisting of a WAP client, a WML client, an HTML client or an HDML client.

**22.** A system according to claim 11 and wherein said presence server includes at least one session object storing session information.

**23.** A system according to claim 11 and also comprising an audio file server associated with said presence server.

**24.** A system according to claim 11 and also comprising an IVR operative to interface between a telephone and said presence server.

**25.** A system according to claim 11 and also comprising an account information server for validating user access to the presence server.

**26.** A system according to claim 24 and wherein said presence server includes a client interface interfacing with said IVR.

**27.** A system according to claim 24 and wherein said presence server includes a message cache.

**28.** A system according to claim 11 and also comprising an HTTP/WAP server through which a web user may be connected to said presence server.

**29.** A system according to claim 11 and also comprising an external server enabling communication between said presence server and an instant messaging service.

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