the user's situation and can send the NOTIFY message directly to the right SIP server. Hence, the user will be contacted immediately without any delay.

[0038] The SIP Register server receives the location information from the SIP User Agent (UA). That information should be updated frequently from the SIP UA every time that the user moves or updates his location. The SIP server containing the SLoP information will be queried by the Messaging Service to determine the exact location of the user. The SIP server will give back to the Messaging Service Center the location of that user and the signaling mechanism for accessing that user. In this case, the user has been registered through the SIP Registrar server, so the access would be done with SIP signaling. In another situation where the user has moved to GSM, H.323 or any other device, the SIP will indicate to the Messaging Service Center the new location and how it can be reached.

[0039] Actually, in the new UMTS systems there is no way to communicate the terminal about such events. There is not even any possible mechanism to keep the user location updated. The present invention provides the means for implementing such new services that are location dependent. This invention overcomes both problems, first the location and second the notification. A simple example is the instant messaging service. Many other services could make use of this solution.

[0040] This invention is a unique departure from existing solutions in the sense that it can provide multiple instances of information necessary to keep the user completely located and inform him about any important event.

[0041] These and other objects, features and advantages of the present invention will become more apparent in light of the detailed description of a best mode embodiment thereof, as illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0042] **FIG. 1** shows a methodology and apparatus for carrying out the present invention in which a presence service is provided over an internet protocol network, as well a showing instant messaging and presence coacting as complementary services in an IP network.

[0043] **FIG. 2** shows the syntax of an SIP REGISTER message, according to the present invention.

[0044] **FIG. 3** shows an example of an SIP REGISTER request that is applicable to the register request shown in **FIG. 10**.

[0045] **FIG. 4** shows an example of an INVITE message applicable also to the invite message shown in **FIG. 10**.

[0046] **FIG. 5** shows the main fields that can be inserted in the header of spatial location payload data.

[0047] **FIG. 6** shows a proposed syntax that includes the header and a body, showing both the format and attributes of the spatial location information.

[0048] **FIG. 7A** shows SIP registration using SLO.

[0049] **FIG. 7B** shows the registration process including server discovery.

[0050] **FIG. 7C** shows the third generation release 2000 architecture.

[0051] **FIG. 7D** shows the position of the SIP-SS inside the CPS.

[0052] **FIG. 8** shows a presence server user case, according to the present invention.

[0053] **FIG. 9** shows the GPP network architecture model.

[0054] **FIG. 10** shows various messages for user registration, according to the present invention.

[0055] **FIG. 11** shows a basic instant messaging mechanism to implement instant messaging over IP networks.

[0056] **FIG. 12** shows interworking for instant messaging, according to the present invention.

[0057] **FIG. 13** shows another example of interworking instant messaging, according to the present invention.

[0058] **FIG. 14** shows an example of instant messaging over all-IP networks where there is no need for conversions.

[0059] **FIG. 15** shows an example of presence and messaging used in conjunction with each other.

[0060] **FIG. 16** shows another example of presence and instant messaging used together.

BEST MODE FOR CARRYING OUT THE INVENTION

[0061] **FIG. 1** illustrates a methodology and apparatus for carrying out the present invention in which instant messaging and a presence coact as complimentary services in IP networks. A first plurality of users **2** are shown already registered at a first presence server **4**. The registrations were previously carried out by a corresponding plurality of register requests from the first plurality of users to the presence server **4** by way of a first central server **6**. The register requests include information relating to a corresponding communications state of each of the first plurality of users. Changes in the communications state of a given user can be changed by that user by re-registering with the presence server **4** via the central service **6**.

[0062] A second plurality of users **8** are shown by dashed lines subscribed a messaging server **10**. These user subscriptions were previously subscribed at the messaging server **10** by providing a corresponding plurality of subscribe requests from the second plurality of users by way of the central server **6** to the messaging server **10**. The subscribe requests may, for example, have included information relating to a corresponding request for notification of an event or set of events which the users wish to be aware of. The subscribe requests can be updated at any time from the users **8** to the messaging server by way of the central server **6**.

[0063] It should be noted that the second plurality of users **8** includes users from the first plurality of users **2**. Looking at it from another perspective, the first plurality of users includes users from the second plurality of users. Some users in both the first and second pluralities of users **2, 8** are shown registered at the same presence server **4** and subscribed at the same messaging server **10**. These users have very direct and therefore efficient use of the presence server **4**, the central server **6** and the messaging server **10** for utilizing both presence and messaging. It should be realized, however, that other users can be registered at other presence servers, other central servers and other messaging servers