(71) Applicant: **INVERTIX CORPORATION** [US/US]; 5285 Shawnee Road, Suite 401, Alexandria, VA 22312 (US).

(72) Inventors: **MCDOWELL, Mark**; 5008 John Ticer Drive, Alexandria, VA 22304 (US). **KHALIL, Joseph**; 3305 Windham Circle, Alexandria, VA 22302 (US). **ZWEIFACH, Steven**; 9018 Greylock Street, Alexandria, VA 22308 (US). **STEAD, Graham**; 4639 5th Street South, Arlington, VA 22304 (US). **LEJEUNE, David, Jr.**; 13285 Coppermill Drive, Herndon, VA 20171 (US).

(54) Title: USE OF PRESENCE AND LOCATION INFORMATION CONCERNING WIRELESS SUBSCRIBERS FOR INSTANT MESSAGING AND MOBILE COMMERCE
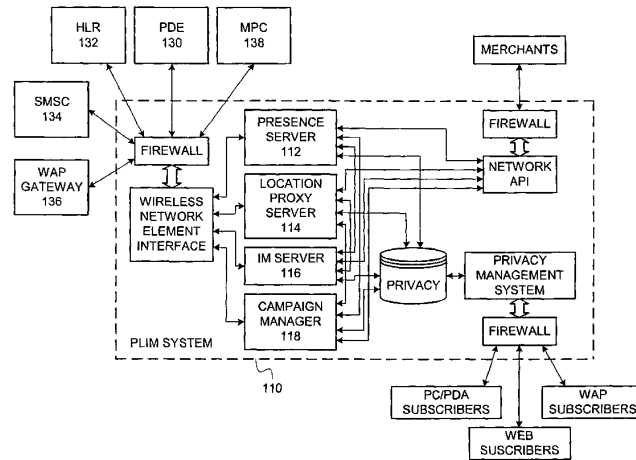
(57) Abstract: Presence determination, location determination, instant messaging, and mobile commerce are integrated into a functionally seamless system, which may be implemented as an added component of a wireless provider's network. Alternatively, the integrated system enables instant messaging and mobile commerce as a centralized gateway attached to the networks of a large number of wireless providers. The gateway facilitates a business model that advances beyond today's practices, in which individual wireless carriers enter into bi-lateral agreements with specific Internet content providers. The functionally integrated gateway disclosed empowers Internet services that require real time information about wireless subscribers in order to conduct m-commerce or offer advanced messaging services. Optimization of a wireless network is also facilitated by taking network performance measurements, without using a special drive test team, via devices that are regularly using the network during standard network operation.

USE OF PRESENCE AND LOCATION INFORMATION CONCERNING WIRELESS SUBSCRIBERS FOR INSTANT MESSAGING AND MOBILE COMMERCE

INTRODUCTION

[0001]   The present invention relates generally to the field of wireless communications. More particularly, the present invention relates to enablement of instant messaging and location-based mobile commerce across Internet and diverse wireless network infrastructures.

BACKGROUND OF THE INVENTION

[0002]   There are two major technical fields that have shown explosive growth over the past few years: the first is wireless communications and the second is use of data services, particularly the Internet. The growth of wireless communications has been astounding. Twenty years ago, there was virtually no use of wireless communications devices such as cellular phones. In contrast, the market penetration for wireless devices in the U.S. in 1999 was 32 percent. The current forecast is that 80 percent of the U.S. population will be wireless subscribers by 2008. Likewise, current and expected adoption of data services is phenomenal. Interestingly, wireless communications and data services are beginning to converge.

[0003]   An example of this convergence is found in Instant Messaging (or "IM"). Originally an Internet-based text communication technology, IM will soon be integrated with wireless networks. It remains to be seen how smoothly this integration will proceed. Presence detection is an important element of any IM solution because an essential aspect of the IM technology is the detection of whether the members of each IM user's buddy list are present on the network. Although presence detection was fairly straightforward in the Internet environment, when the various wireless networks are to be integrated into the IM phenomenon presence is no longer so easy to establish comprehensively.

[0004]   Thus, what is needed is an infrastructure technology to enable mobile IM services and provide for effective mobile buddy lists.

[0005]   Another potential benefit of the integration of wireless networks with fixed IP networks, such as the Internet, is mobile commerce (also referred to as m-commerce).

Thus far, mobile commerce has been severely limited. To date, mobile commerce has typically been subscriber-initiated, with the subscriber using a handset to locate a product or service. This approach is consistent with E-911 implementations, where the subscriber initiates a call that requires location information. However, for mobile commerce to be broadly successful this paradigm needs to be inverted. This inversion occurs because wireless devices (telephone handsets, personal digital assistants, etc.) are not suitable for "window shopping." Merchants should have the ability to initiate promotions – on a permission-oriented basis – just as they do with other media.

[0006]   In the next three years, the number of m-commerce providers is expected to grow from almost zero to more than 18,000 worldwide. In addition, traditional retailers will also seek to engage mobile customers. The current model of bi-lateral agreements cannot scale to meet the demands of m-commerce, messaging, and traditional retail. A centralized gateway, where subscriber information can be sold (on a permission-oriented basis) to firms that require such information, would be an advantageous advance

[0007]   Thus, what is needed is a centralized gateway where subscriber information can be sold, on a permission-oriented basis, to commercial firms.

[0008]   The availability of location information concerning the wireless handsets is important to the enablement of mobile commerce. Although handset location information is not strictly required for mobile commerce to occur, it certainly facilitates the establishment of an effective m-commerce campaign.

[0009]   Wireless carriers worldwide are preparing to offer location-based services to their subscribers. At the heart of these services is the Position Determining Equipment (PDE) which determines the location of a wireless device. The available PDE solutions employ several distinct methods of location determination: triangulation of RF signals among base stations; RF fingerprinting; and, embedded GPS in the wireless device. Regardless of the method employed, the PDE's most critical interface is to the Mobile Positioning Center (MPC), which routes emergency 911 voice calls and their associated location information to the local Public Safety Access Point (PSAP). The PDE also has an interface to a Location Proxy Server (LPS), which makes location information available to non-emergency third parties outside the wireless network.

[0010]   There is a trend in the industry to combine the MPC and the LPS into a single platform: both systems route voice calls with embedded location information to third parties. However, there are good reasons that this conventional trend should be reversed and the MPC and LPS should be decoupled. Whereas the MPC performs the proven, stable function of routing emergency calls to the PSAP, the LPS is expected to evolve rapidly to accommodate the massive demands of Internet-based businesses and services. Perhaps most importantly, the LPS must accommodate merchant-initiated transactions, which should become a significant aspect of mobile commerce but cannot be provided by voice call-driven MPC technology. In the same way that Home Location Registers (HLRs) have been decoupled from MSCs – allowing "intelligence" to be decoupled from switching fabric – the LPS should be decoupled from the MPC and allowed to evolve into a highly intelligent engine responsible for making wireless Internet access relevant, personal, and timely.

[0011]   A number of companies (e.g., FolloWap, OpenWave, SignalSoft, CTMotion, Air2Web, AirFlash, Ericsson's "Oz," InfoSpace, WindWire, OpenGrid, Aether Systems, 724 Solutions, MessageVine, Lucent, Nortel, Nokia, Quickdot, Xypoint, Cellpoint, just to name a few) currently promise technologies that will provide some form of IM or m-commerce solutions for wireless handsets to communicate with Internet-connected users. However, none of these companies have been able to develop a system that integrates presence determination, location determination, Instant Messaging, and mobile commerce.

[0012]   Thus, what is needed is a an infrastructure technology that allows the integration of presence determination, location determination, Instant Messaging, and mobile commerce.

SUMMARY OF THE INVENTION

[0013]   Accordingly, one aspect of the present invention is the integration of presence determination, location determination, Instant Messaging, and mobile commerce into a functionally seamless system. This integrated Presence, Location, Instant messaging, and Mobile commerce (or "PLIM") system may be implemented as an added component of a wireless provider's network.

[0014]   Alternatively, a further aspect of the invention is the integration of presence determination, location determination, Instant Messaging, and mobile commerce as a

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.

fastcase
Smarter legal research.