

SYSTEMS AND METHODS FOR A MULTIMEDIA COMMUNICATIONS SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Application Ser. No. 60/671,319, filed Apr. 14, 2005, pursuant to 35 U.S.C. § 119(e), which application is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention generally relates to systems and methods for multimedia communications, and in particular certain embodiments of the present invention relate to systems and methods for multimedia communications over a multi-function handheld device.

[0004] 2. Description of the Prior Art

[0005] Multimedia communication over handheld devices has become widespread. Because of a lack of convergence, most handheld devices are specialized to a limited number of functions or capabilities, such that the full capabilities of handheld devices generally are spread between different types of devices.

[0006] This creates the problem that for a mobile user to add communications capabilities or other special-purpose technical capabilities may require carrying and using additional handheld devices. For example, the capabilities of scanning a barcode, making a telephone call, and sending an email could require a mobile user to carry as many as three separate devices, such as a special-purpose barcode scanner, a cellular phone, and a wireless email device such as a Blackberry. This is inconvenient both from an administrative perspective, as each such device might be associated with a different carrier or network provider with separate billing, and from a physical perspective, as the mobile user is forced to carry around multiple devices. The use of different, multiple handheld devices also limits the interoperability of the various functions of those devices.

[0007] The implementation of communication and other functions on handheld devices is limited by hardware vendors' and/or network carriers' proprietary interfaces for accessing such capabilities. The number and non-uniformity of such proprietary interfaces can make it impractical to develop multimedia communication software for handheld devices, especially for software intended to run in an environment of multiple, heterogeneous handheld devices, even more so if those devices are made by different manufacturers.

SUMMARY OF THE INVENTION

[0008] A Multimedia Messaging Services (MMS) system enables multimedia communication using handheld and stationary devices. Handheld devices can include any form of hardware or software, including any version of Windows CE, Pocket PC, Windows Mobile, Windows Embedded, Symbian, or other mobile device operating system or hardware interface. Stationary devices can include any form of hardware or software, including any version of Windows

95/98/2000/XP, Mac OS, Linux/Unix, or other operating system or hardware interface.

[0009] The MMS system can comprise a plurality of handheld devices configured to communicate with each other in various forms of multimedia, using an MMS server. The MMS Server can comprise a Session Manager to maintain session data and enforce policies, a Media Distribution Center to distribute static messages to users, a Streaming Media Engine to distribute and route live media between users, a System Database to store server configuration and session settings, a Media Store to store all messages and optionally all recorded calls passing through the MMS server, and an Inter-Server Communication Manager for connecting users across multiple MMS Servers via server-to-server communications. The system can be configured to support presence-aware devices, and to record the presence information of the devices within an MMS network, whether connected or not.

[0010] A handheld device can be configured to provide various multimedia communication capabilities such as one-way (half-duplex) or two-way (full-duplex) real-time audio or video, email, text messaging, image and video messaging, scribble messaging (capturing freeform sketches and/or handwritten text from the device's screen), and so forth, which can be provided over a data network. Communications between users can include static messages and real-time interactive calls. Handheld devices can be further integrated with special-purpose capabilities such as a barcode scanner.

[0011] Multimedia communications between devices can be propagated using data networks or cellular networks. The MMS system can be configured to integrate with cellular or landline phone networks, for network access outside a local area network, or to place outgoing calls to specific conventional phone numbers. Handheld devices can be configured to provide conventional wired and wireless telephony features such as caller ID, call waiting, voice conferencing, push-to-talk, and so forth.

[0012] A development platform comprising development modules, production modules, and a server can enable the development of software applications for multimedia communications across various handheld device types using a device agnostic programming interface. The MMS system can be configured to support integration with other software applications, including intelligent software agents.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] **FIG. 1** illustrates an MMS system comprising two MMS servers operating in lock-down mode according to certain embodiments of the present invention;

[0014] **FIG. 2** illustrates an MMS system comprising a single MMS server operating in open mode according to certain embodiments of the present invention;

[0015] **FIG. 3** illustrates an MMS system according to certain embodiments of the present invention

[0016] **FIG. 4** illustrates a message-based conversation between two users according to certain embodiments of the present invention;

[0017] **FIG. 5** illustrates a message-based conversation between four users including a broadcast message according to certain embodiments of the present invention; and