Comparison Between the Specifications of the '039 and '801 Patents

Edits made to ’039 Patent specification resulting in ’801 Patent specification

RELATED APPLICATION(S)

The present application is continuation of U.S. patent application Ser. No. ~~14/324,698 filed Jul. 7, 2014, which is a continuation of U.S. patent application Ser. No. 14/175,768 filed Feb. 7, 2014 and now issued as U.S. Pat. No. 8,825,801, which is a continuation of U.S. patent application Ser. No.~~ 13/364,950 filed Feb. 2, 2012 ~~and now issued as U.S. Pat. No. 8,793,336~~, which is a continuation of U.S. patent application Ser. No. 13/027,519 filed Feb. 15, 2011 ~~and now issued as U.S. Pat. No. 8,135,801~~, which is a continuation of U.S. patent application Ser. No. 12/548,928 filed Aug. 27, 2009 and now issued as U.S. Pat. No. 7,908,342, which is a continuation of U.S. patent application Ser. No. 10/464,526 filed Jun. 18, 2003 and now issued as U.S. Pat. No. 7,599,983, which claims the priority of U.S. Provisional Application Ser. No. 60/389,430 filed Jun. 18, 2002, the disclosures of which are hereby incorporated by reference herein.

FIELD OF THE INVENTION

The present invention relates generally to network-based communication systems, and more particularly to techniques for information content management in such systems.

BACKGROUND OF THE INVENTION

One of the most rapidly expanding aspects of wireless networking involves the accessing of information content over wireless networks via web-enabled mobile devices. Examples of such devices include mobile telephones, personal digital assistants (PDAs), palmtop computers, etc. As is well-known, these and other web-enabled devices not only provide access to the Internet, but can also be used to support other types of wireless networking functionality, such as messaging, distributed collaboration, and location-based services.

An important challenge in this context relates to facilitating the process of creating, publishing, distributing or otherwise managing information content so as to provide optimal presentation consistent with the limited display space and navigational capabilities of typical mobile devices. Many users, for example, may wish to make specific personalized information content available via mobile devices to their friends, colleagues, subscribers or other entities. However, conventional techniques have been unable to meet this need in a satisfactory manner. By way of example, conventional techniques such as web site authoring tools and web logging (“blogging”) are not optimized for use in the generation of information content for shared access via mobile devices.

These and other conventional techniques suffer from a number of significant drawbacks, including a failure to provide suitable integration of messaging, collaboration, location-based services or other wireless networking functionality with the generation of shared information content. As a result, it is generally not possible for different mobile device users to link to and take further action on a persistent version of a given set of shared information content. The conventional techniques thus fail to provide a mechanism that facilitates uniform, action-driven content access and associated user interaction via wireless networks. Also, such techniques generally require a significant amount of programming knowledge for their proper use, and are therefore not suitable for relatively unsophisticated users.

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Accordingly, a need exists for improved techniques for managing information content in a manner that overcomes one or more of the drawbacks of the conventional techniques described above.

SUMMARY OF THE INVENTION

The present invention in an illustrative embodiment thereof provides techniques for efficient generation and management of mobile sites that are advantageously integrated with wireless networking functionality of a wireless network in a network-based communication system.

In accordance with one aspect of the invention, a method comprises ~~obtaining~~ providing an interface permitting a first user to control activation of a mobile information channel through which the first user can share access to content ~~at a mobile device, determining~~with a plurality of additional users, activating the mobile information channel responsive to input received from the first user via the interface, inserting content provided by the first user into the mobile information channel, receiving additional content relating to the mobile information channel from one or more of said additional users via one or more respective mobile devices associated with at least one wireless network, inserting at least a portion of the additional content into the mobile information channel, and integrating into the mobile information channel information associated with at least one wireless networking functionality of ~~the mobile device responsive to user input, and providing the content and determined information to at least one server for insertion into a specified application-based information channel~~said at least one wireless network.

In accordance with another aspect of the invention, ~~a mobile device~~an apparatus comprises ~~at least one~~a processing element comprising a processor coupled to a memory ~~and at least one network interface.~~. The processing element provides at least ~~one~~ a portion of an interface permitting a first user to control activation of a mobile information channel through which the first user can share access to content with a plurality of additional users. The processing element is configured to ~~obtain content, determine~~activate the mobile information channel responsive to input received from the first user via the interface, insert content provided by the first user into the mobile information channel, receive additional content relating to the mobile information channel from one or more of said additional users via one or more respective mobile devices associated with at least one wireless network, insert at least a portion of the additional content into the mobile information channel, and integrate into the mobile information channel information associated with at least one wireless networking functionality of ~~the mobile device responsive to user input, and provide, via the at least one network interface, the content and determined information to at least one server for insertion into a specified application-based information channel~~said at least one wireless network.

In accordance with another aspect of the invention, a ~~method~~network-based communication system comprises ~~receiving, at~~ a ~~server from~~ plurality of servers configured to communicate over a network. At least one of the servers provides at least a portion of an interface permitting a first user to control activation of a mobile ~~device, content for insertion into a specified application-based~~ information channel~~, receiving, at the server from~~ through which the first user can share access to content with a plurality of additional users. Said at least one server is configured to activate the mobile ~~device, information~~information channel responsive to input received from the first user via the interface, insert content provided by the first user into the mobile information channel, receive additional content relating to the mobile information channel from one or more of said additional users via one or more respective mobile devices associated with at least one wireless network ~~functionality of the mobile device, and~~

integrating the content and the information associated with said at least one wireless network functionality of the mobile device into the specified application-based information channel.

In accordance with another aspect of the invention, a server comprises at least one processing element comprising a processor coupled to a memory and at least one network interface. The, insert at least one processing element is configured to receive, from a mobile device, content for insertion into a specified application-based information channel, receive, fromportion of the mobile device,additional content into the mobile information channel, and integrate into the mobile information channel information associated with at least one wireless networknetworking functionality of the mobile device, and integrate the content and the information associated with said at least one wireless network functionality of the mobile device into the specified application-based information channel.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A is a block diagram of an example network-based communication system configured in accordance with an illustrative embodiment of the invention.

FIG. 1B is a block diagram showing one possible implementation of a given processing element in the system of FIG. 1A.

FIG. 1C shows a block diagram of one possible arrangement of system elements associated with the system of FIG. 1A.

FIG. 1D shows a schematic diagram of home page of a content management site in the system of FIG. 1A.

FIGS. 2 and 3 show additional schematic diagrams of site pages associated with a content management site in the system of FIG. 1A.

FIGS. 4 and 5 show schematic diagrams of site pages associated with a mobile site in the system of FIG. 1A.

FIGS. 6 through 17 *b* are screenshots of illustrative site pages associated with a content management site in the system of FIG. 1A.

FIG. 18 shows an example mobile device suitable for use in the system of FIG. 1A.

FIG. 19 is an exemplary operational flow diagram of a registration process in accordance with the invention.

FIG. 20 is an exemplary operational flow diagram of a login process in accordance with the invention.

FIG. 21 is an exemplary operational flow diagram of a mobile site creation process in accordance with the invention.

FIG. 22 is an exemplary operational flow diagram of a mobile site content authoring process in accordance with the invention.

FIG. 23 is an exemplary operational flow diagram of a directory process in accordance with the invention.

FIGS. 24 *a* through **25** *o* show typical illustrative examples of mobile site screens generated at a mobile device in the system of FIG. 1A.

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DETAILED DESCRIPTION

The present invention will be illustrated herein in the context of an exemplary network-based communication system and associated system elements and processes. It is to be appreciated, however, that the particular arrangements shown and described herein are presented by way of illustrative example only, and should therefore not be construed as limiting the scope of the present invention to any particular embodiment or group of embodiments. Those skilled in the art will recognize that the described techniques are more generally applicable to any wireless communication application in which it is desirable to provide improved integration of information content management with wireless network functionality.

FIG. 1A shows an example network-based communication system **10** configured in accordance with an illustrative embodiment of the invention. The system **10** includes a wireless network **12** coupled to the Internet **14**, a set of mobile devices **15**, a set of servers **16** and a set of user terminals **18**. More specifically, mobile devices **15**-**1**, . . . **15**-*n* are coupled to the wireless network **12**, while servers **16**-**1**, . . . **16**-*k* and user terminals **18**-**1**, . . . **18**-*r* are coupled to the Internet **14**. The numbers n, k, and r are purely arbitrary, provided for simplicity and clarity of illustration only, and in a given implementation of this illustrative embodiment can take on any desired value. Also, alternative embodiments of the invention need not include the particular system elements shown, and may include other elements of a type and configuration known to those skilled in the art, in place of or in addition to the particular elements shown.

The mobile devices **15** and user terminals **18** may be more generally referred to herein as user devices.

The term "user" is intended to include, without limitation, an individual, a group of individuals, a business, an organization, or any other entity capable of deriving benefit from use of at least a portion of the system **10**. Actions described herein as being performed by or otherwise associated with a user may be performed by or otherwise associated with an individual or other entity, a corresponding device, or both the entity and the device.

The network configuration of system **10** illustratively comprises wireless network **12** and Internet **14**. However, the invention does not require this particular network arrangement. A network suitable for use with the invention may include any type of data communication network, including the Internet, an intranet, an extranet, a wide area network (WAN), a metropolitan area network (MAN), a wired local area network (LAN), an IEEE 802.11 or Wi-Fi wireless LAN, a satellite communications network, a virtual private network (VPN), a public switched telephone network (PSTN), a cellular network based on third generation (3G) wideband code division multiple access (CDMA) or other standard, as well as portions or combinations of these and other networks.

It is also to be appreciated that the invention is not limited with regard to the particular communication protocols that may be utilized in communicating information within the system **10** of FIG. 1A. Examples of communication protocols utilizable in conjunction with the invention include Internet protocol (IP), transmission control protocol (TCP), user datagram protocol (UDP), real-time protocol (RTP), short message service (SMS), multimedia message service (MMS), wireless application protocol (WAP), session initiation protocol (SIP), etc.

The mobile devices **15** can collectively comprise a wide variety of different devices configurable for communication over the network **12**. The term "mobile device" as used herein is intended to include,

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without limitation, any type of portable information processing device capable of being configured for communication over a network. Examples of mobile devices **15** utilizable in system **10** of FIG. 1A include a mobile telephone, a personal digital assistant (PDA), a palmtop computer, a hand-held computer, a laptop computer, a tablet computer, a global positioning system (GPS) receiver or other GPS-based navigational device, an MP3 player or other type of audio player, a pager, a watch or other timepiece, a camera, a portable game player, etc.

The servers **16** may comprise, by way of example, network computers or other types of computers or processing elements capable of being configured for the maintenance, storage, delivery or other processing of information received or deliverable over the Internet or other type of network.

Although not specifically denoted as such in the figure, one or more of the user terminals **18** may each comprise a mobile device. Also, a given one of the user terminals **18** may comprise a non-mobile device, including, by way of example, a desktop personal computer, a workstation, a minicomputer, a mainframe computer, a television, a set-top box, a kiosk, etc.

FIG. 1B shows one possible implementation of an information processing element **20** of the system **10**. The processing element **20** may be viewed as being representative of a given one of the mobile devices **15**, a given one of the servers **16**, or a given one of the user terminals **18**. The processing element **20** in this implementation includes a processor **22**, a memory **24**, and a network interface **25**, which communicate with one another over a set of bus lines **26**. The processor **22** may comprise, for example, a microprocessor, a central processing unit (CPU), an application-specific integrated circuit (ASIC), a computer, or any other type of digital data processing device, as well as portions or combinations of such devices. The memory **24** may comprise electronic memory such as random access memory (RAM), read-only memory (ROM), disk-based memory, or any other type of storage device, as well as portions or combinations of such devices. The network interface **25** provides an interface for the processing element **20** to the wireless network **12** or Internet **14**.

The memory **24** of processing element **20** stores one or more software programs which are executed by the processor **22** in providing at least a portion of the system functionality described herein as being associated with the corresponding mobile device, server or user terminal. One skilled in the art would understand that memory **24** is an example of a computer-readable storage medium.

In accordance with one aspect of the invention, the system **10** in the illustrative embodiment provides at least one content management site accessible to a system user. The user may be a user associated with one of the mobile devices **15**, or any other system user. The content management site may be supported by one or more of the servers **16**, and may be accessed by the user over Internet **14** via one of the user terminals **18**. The content management site permits the user to enter information in accordance with a specified format comprising a plurality of selectable mobile information channels each corresponding to an information category. The mobile information channels are also referred to as “M-channels” herein, and will be described in greater detail below. The entered information is processed to generate a mobile web site comprising information content that is accessible via one or more of the mobile devices **15** over the wireless network **12** of the system **10**. The information content of the mobile site is preferably configured such that a persistent version thereof is accessible via the one or more mobile devices **15** over the wireless network **12**.

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The content management site can also be accessed via one of the mobile devices **15**, and used to create a mobile site also accessible via that mobile device and one or more other mobile devices.

The system **10** can support any desired number of content management sites and any desired number of mobile sites that are generated and managed via the content management sites. For example, a given content management site can be associated with a particular business or other entity, and can be used to generate a plurality of mobile sites for various users associated with that business or other entity. An operator of the content management site can offer mobile site building and other content management services to such entities for a fee. The operator may also provide customization services, so that a given entity can create mobile sites that bear corresponding corporate trademarks, logos or other symbols, or that are customized in other ways.

In the illustrative embodiment, the content management sites and the mobile sites may each be implemented as a corresponding web site accessible over the Internet **14**, although this is not a requirement of the invention. Other embodiments may implement one or more of the content management sites or one or more of the mobile sites as intranet sites, extranet sites or other information sources accessible via these or other types of networks.

Advantageously, the information content of a given mobile site generated in the system **10** may be configured so as to integrate therewith information associated with at least one wireless networking functionality of the wireless network **12**. This information may be determinable based at least in part on one or more parameters associated with the above-noted mobile information channels or M-channels. Examples of such information include information specifying at least one messaging action implementable over the wireless network, information specifying at least one collaboration action implementable over the wireless network, and information specifying at least one location-based service action implementable over the wireless network. Other types of information associated with wireless networking functionalities may also or alternatively be used.

Accessibility to a given mobile site may be controlled so as to permit one or more third parties to view at least a portion of the mobile site without any such parties being registered users of the content management or mobile site portions of the system.

A given content management site may be provided, for example, by a service provider or other entity operating the wireless network **12**, and a user thereof may be a subscriber of that entity. More particularly, the content management site may include identifying information indicating association of the site with the entity operating the wireless network, and may be made accessible only to subscribers of the wireless network.

As another example, a given content management site used for generation and management of a mobile site may be provided to the user contingent upon purchase of specified goods or services associated with the wireless network **12**.

Numerous other content management site configurations may be used in implementing the invention.

A given mobile site in accordance with the invention can be generated for a group comprising multiple members having a common interest. For example, a mobile site may be generated for a family, a group of friends, a club, a sports team, a business, a sales force, a civic group, a fan group, a political party, a campaign, a charity, or any other type of multi-member organization. Such a site may be used for efficient

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dissemination of relevant information to group members via the wireless network **12**. For example, the site can be used to generate messages, using instant messaging (IM), SMS, MMS, pages, emails, voice-over-IP (VoIP) calls, cellular telephone calls, or any other suitable messaging format, that are sent to organization members over the wireless network. Such a message from a given member of the organization can direct other members to access the mobile site to obtain additional information regarding events, news, cancellations, reschedulings, updates, polls, special requests, etc. Organization members can easily and efficiently post information and generate messages to other members so as to facilitate collaboration and other types of interaction.

A given mobile site, also by way of example, may be associated with an event, and information identifying the event and its associated mobile site may be transmitted via the wireless network **12** to mobile devices of one or more users that are determined to be likely to have an interest in the subject matter of the event. The event may be a movie, a concert, a sporting event, a political rally, a contest, a promotion, particular goods or services being offered for sale by a vendor at certain prices or on certain conditions, etc. Such interested users may be determined, for example, by comparing generalized demographic data associated with the event with personal demographic data previously stored for the system users, or utilizing other marketing data based techniques. A mobile site of this type is especially useful for implementing follow-up marketing actions, user registration, etc.

As another example, a given mobile site may be associated with a particular geographic location. More specifically, the given mobile site may be generated for a “waypoint” specified by particular latitude and longitude coordinates representing a geographic location utilized in the activity of geocaching, or other location-based activity. In generating such a mobile site utilizing the techniques of the invention, a user could enter information such as a title, a location specified by latitude, longitude, elevation, or other location-identifying information, a difficulty level, a terrain quality, one or more hints, a map, or other types of information. Along with typical items found in a conventional geocache, such as trinkets and a log, a password could be included that provides access to a corresponding mobile site which can be utilized by other users to validate that they have found the geocache. Contests or promotions could also be organized to provide specified rewards to a first user to reach a given geocache. The first user to reach the geocache can be identified by determining the first user to log into the geocache mobile site using the appropriate password. Visitors to the mobile site may be provided with an ability to leave a note or other message describing aspects of their journey, what items they took from the geocache, what items they placed in the geocache, etc. Mobile sites corresponding to geocaches may be searched for by zip code, state, country, keyword, waypoints, GPS coordinates, etc. A mobile device with built-in GPS capability may be used to facilitate interaction with mobile sites corresponding to geocaches or other geographic locations. Mobile sites corresponding to these and other geographic locations can be accessed, for instance, using a GPS-based automotive navigation device, or other types of user devices.

As an additional example, a given mobile site may be associated with a game. More specifically, a mobile site may be generated for a game and accessed from a web-enabled gaming device or other type of user device. The mobile site could provide information such as tips, tricks, player profiles, and player locations, and could also be used to support collaboration or other types of communication between players. Players may also be permitted to access the mobile site from non-gaming user devices, to participate in game-related activities that could lead to increasing their health points, skill level, number of lives, hit points, magic level, equipment, apparatus, gear, etc.

As a further example, a given mobile site may be associated with a user of IM, SMS, MMS, email or other type of messaging service. More specifically, a mobile site may be generated for a particular user so that other users exchanging messages with the particular user are provided with access to persistent information content that facilitates their interaction with the particular user. Such an arrangement is particularly useful as the volume of wireless "spam" is continually increasing and users require an "island in the storm" at which they can interact in a controlled, private collaborative workspace. Additionally, when a user accesses an email or other type of message using a mobile device, that user can be directed to a mobile site for follow-up marketing actions or other activities.

As another example, a given mobile site may be associated with a television program, movie, music artist or other entertainment-related entity. More specifically, a mobile site may be generated for a broadcast program and accessed by a user from a set-top box while the user is watching that program. Interaction activities involving provided content could then take place between viewers, the network, and advertisers.

As yet another example, a given mobile site may be associated with a particular product via product name, bar code, radio frequency identification (RFID), or other type of product-identifying information. Such a mobile site could be configured to provide, for its associated product, additional information of interest to product users, customer service access, ordering or purchase support, etc.

Of course, the foregoing are merely examples of mobile sites that may be generated and managed using the techniques of the invention. Numerous other types of mobile sites may be used in implementing the present invention.

The term "mobile site" as used herein is intended to include, without limitation, a web site, a collaborative workspace, a data mailbox, a collaborative community, an Internet storefront, one or more M-channels and/or an associated data set, or other similar element(s), as well as portions or combinations thereof.

The above-noted M-channels will now be described in greater detail. As mentioned previously, M-channels are utilized at the content management site of the illustrative embodiment to facilitate the generation of mobile sites and the management of associated content. More specifically, the M-channels allow unsophisticated users to easily and efficiently author message data or other types of information content to be made accessible via a collaborative workspace, a data mailbox, a collaborative community, or other type of mobile site or portion thereof generated or otherwise managed in the system **10**. Features such as task, action, event, location, delivery or collaborative enabling of specified M-channel content may be specified along with access methods, automatic generation of wirelessly accessible navigation menus, content presentation views, etc.

The particular configuration of the M-channels, and the content integration options associated therewith, may vary from implementation to implementation depending upon factors such as the particular wireless networking functionalities available in the system.

Examples of M-channels suitable for use in the illustrative embodiment include channels denoted herein as mobile ID/business card (also referred to as a "contact" M-channel), announcements, chat, events, guest book, diary/journal, bookmarks/links, discussion forum, survey/poll, newsletter/zine, notes, email, address book, contribute/donate, mobile volunteer management, company directory, in/out board, field reports, feedback, form builder, live data/in-out syndication, mobile document library, products catalog/shopping cart, services catalog/shopping cart, appointments, task list/assignments, promotions,

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offers, coupons, sweepstakes, contests, photo blog, etc. Numerous other information categories may be represented by corresponding mobile information channels at a content management site in accordance with the invention.

The notation "/" as used herein should be understood to refer to "and/or" unless otherwise indicated.

Additional details regarding the operation of exemplary M-channels in accordance with the invention will be described below in conjunction with certain of the site pages of FIGS. 2 through 17, as well as in conjunction with the operational flow diagrams of FIGS. 21 and 22.

As indicated previously, the content management aspects of the system **10** can be implemented at least in part utilizing software associated with processing elements of the system. A more particular example of one possible arrangement of such elements will now be described in conjunction with FIG. 1C. Of course, this is simply one possible arrangement, and a wide variety of other arrangements suitable for implementing the techniques of the invention will be readily apparent to those skilled in the art.

Referring now to FIG. 1C, a set of processing elements **30** in the system **10** includes a plurality of "suites," each suite comprising a particular arrangement of hardware, software and/or firmware elements implemented using one or more of the mobile devices **15**, servers **16** and user terminals **18** of the system **10**. More specifically, the set of processing elements **30** comprises a display suite **32** associated with a display server **33**, a management and processing suite **34** associated with an interaction server **35**, a data integration suite **36** associated with a data integration server **37**, and a services integration suite **38** associated with a services integration server **39**. Each of the servers **33**, **35**, **37** and **39** may comprise one or more of the servers **16** or other elements shown in FIG. 1A, or suitable portions or combinations thereof.

Communications between the suites **32**, **34**, **36** and **38** may be carried out using conventional connections established over wireless network **12** or Internet **14**, or using other communication channels or transport media of a type known in the art.

In the display suite **32**, a number of example user devices, including mobile phone **40**, smart phone **41**, pocket PC **42**, Palm device **43**, iMode phone **44**, personal computer **45**, set-top box **46**, game and/or camera **47** and other wireless devices **48**, interact with the display server **33**. The display server **33** interacts with elements of one or more of the other suites in controlling the presentation of particular screens on the various user devices. Certain of the user devices in suite **32** may be viewed as representative examples of mobile devices **15**, while others may be viewed as representative examples of user terminals **18**.

The management and processing suite **34** includes a management and M-channel engine **50**, a personalization and rules engine **51**, an authoring and publishing engine **52**, a presentation engine **53**, and a distribution, delivery and service engine **54**. The interaction server **35** controls the interface between these engines and the display server **33** of the display suite **32**. The management and processing suite **34** in this example provides the above-noted content management site(s) utilized to generate and otherwise manage mobile sites in accordance with the techniques of the invention.

The data integration suite **36** includes extensible markup language (XML) and/or rich site summary (RSS) feeds **60**, database and/or file **61**, syndication services **62**, device-captured data **63**, web services **64**, and

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other data sources **65**. The data integration server **37** controls the interface between these data sources and the interaction server **35** of the management and processing suite **34**.

Other XML-related protocols that may be utilized in conjunction with the invention include, for example, remote procedure call (RPC), outline processor markup language (OPML), and simple object access protocol (SOAP).

The services integration suite **38** includes an MMS center **70**, an SMS center **71**, email systems **72**, billing systems **73**, voice systems **74**, and other systems **75**, each of which may be viewed as representative of a particular type of wireless networking functionality accessible to the mobile devices **15** via the wireless network **12**. The services integration server **39** controls the integration of information associated with these wireless networking functionalities with the content of the mobile site generated via the content management site.

FIG. 1D shows a home page of an example content management site in the illustrative embodiment of the invention. The example content management site in the context of the illustrative embodiment comprises an Internet web site used to generate and otherwise manage mobile sites. A given one of the mobile sites may be referred to herein as a "Winksite," where "Wink" may be viewed generally as a shortened form of the term "wireless ink," reflecting the wireless content management aspects of the invention.

It is to be appreciated that certain aspects of the content management site may be made accessible via one or more of the mobile sites and vice-versa. The notation "Winksite" may therefore also be used to denote a content management site or portion thereof, or a hybrid site comprising aspects of both a content management site and one or more mobile sites.

Additional schematic diagrams of web pages associated with the example content management site or a corresponding mobile site will be described in conjunction with FIGS. 2 through 5. Related screenshots of the web pages associated with the content management site will be described with reference to FIGS. 6 through 17. It should again be emphasized, however, that the arrangements shown are presented by way of illustrative example, and should therefore not be construed as limiting the scope of the invention in any way.

The content management site may be viewed as being part of a mobile communications publishing platform provided by the system **10** of FIG. 1A. This platform integrates aspects of wireless network functionality with mobile site content generation, thereby facilitating user interaction via the mobile devices **15**. The content management site in the illustrative embodiment is designed to generate and otherwise manage dynamic, time-sensitive, task-oriented mobile sites, including wireless collaborative workspaces and communities. The content management site allows content such as data, media, multimedia, messages, news, features, events, polls, competitions and advertising to be rapidly created, entered into the system, and then subsequently syndicated, distributed, shared, collaborated with or acted upon by users of mobile devices.

By utilizing the content management site, system users can create one or more personal or business mobile sites with various sets of features, and then share such sites via the mobile Internet or other wireless network with friends, family, colleagues, or other groups of any type. The content management site makes it simple for unsophisticated users to upload, enter, create, syndicate, distribute or otherwise

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manage content that is important to them, in a manner that allows such content to be accessed, shared, and acted upon from a mobile device.

Referring now to FIG. 1D, a home page **100** of the content management site provides a user interface comprising a series of display regions denoted by blocks **102** through **142**, each associated with a corresponding user-activatable control mechanism. These control mechanisms may be implemented as a plurality of hypertext links, each of which, when activated, instantiates a subordinate user interface comprising one or more other pages of data associated with the content management site. The home page **100** and other pages referred to herein may be configured using hypertext markup language (HTML), XML, or other any suitable web page formatting language, as well as combinations of such languages.

Access to the home page **100** may be provided to all system users, regardless of whether or not those users have previously registered with the system. A given user accesses the home page **100** by entering a corresponding uniform resource locator (URL) in a web browser of their associated user device. Although not specifically shown in the figure, introductory, instructional or other explanatory text, as well as graphics and various forms of advertising, including so-called click-through or banner advertising, may be included on the home page **100**.

A registration process is preferably provided in order to allow users to establish an account with the system. Such a process can be initiated by activation of the hyperlink associated with block **104**. Previously-registered users can login to their accounts by activating the hyperlink associated with block **102**. Details of the registration and login processes associated with respective blocks **104** and **102** will be described below in conjunction with the respective flow diagrams of FIGS. 19 and 20.

Access to certain system features associated with certain blocks, such as blocks **108** through **124**, may be limited to registered users. Registered users may also be referred to herein as "members."

The text and graphics of the home page **100**, although initially the same for both registered and unregistered users, may be periodically updated or otherwise customized to display account information or other information that is unique to a registered user, upon login of such a user.

Block **106** in FIG. 1D represents a display region containing a link to an optional logoff process. The logoff process enables a registered user who has previously logged in to activate a control so as to redirect his or her browser to the non-customized version of home page **100**. This feature is useful, for example, in a situation in which multiple users share the same personal computer or other terminal. More specifically, a given registered user who has logged in may, without turning off the computer or closing its Internet connection, and even without closing the browser or pointing it to another URL, conceal and prevent further access to his or her account information while also enabling another registered or unregistered user to access the home page **100**.

FIG. 2 shows a start page **200** of the example content management site in the illustrative embodiment of the invention. The start page **200** provides a user interface comprising a series of display regions denoted by blocks **202** through **242**, each associated with a corresponding user-activatable hypertext link or other control mechanism. The start page **200** may be accessed, for example, by activating the link associated with block **108** of FIG. 1D.

FIG. 3 shows a main menu page **300** of the example content management site in the illustrative embodiment of the invention. The main menu page **300** provides a user interface comprising a series of

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display regions denoted by blocks **302** through **344**, each associated with a corresponding user-activatable hypertext link or other control mechanism. The main menu page **300** may be accessed, for example, by activating the link associated with block **222** of FIG. 2.

An example of a preference feature that may be made available only to registered users is an address book feature. This feature can be accessed by activating the link associated with block **320** in FIG. 3. Such a feature allows the names, email addresses, mobile telephone numbers and other contact information of potential message recipients to be recorded and then easily selected when a message is to be sent.

A given registered user may be permitted to elect to share his or her address book information, or other types of user information, with other users. Such sharing can be implemented by activating a link (not shown) to a page where the user may provide identifying information about the other individual(s) with whom he or she proposes to share information. The site software may be configured such that, if any of the other individuals are registered users, an email message is sent to those individuals. The email message may contain a link to the URL of a page at which the individuals will be given the option of accepting or declining the information sharing proposal.

If any of the other individuals are not registered users, then an attempt may be made to obtain an email address for each of those other non-registered users. For any such non-registered users for which an email address is obtained, an email message may be sent containing a link, along with appropriate explanatory text, to the site registration process to be described in conjunction with FIG. 19. After completing the registration process, the individual will be given the option of accepting or declining the information sharing proposal.

A given registered user may also be permitted to designate one or more other users selected, for example, from among those listed in a directory or contact list, with whom the given user would like to interact. Any such other users may be notified in the manner indicated above and provided with an opportunity to accept or deny the proposed interaction.

Another preference feature that may be provided to registered users is an ability to designate one or more of the mobile sites available in the directory of the content management site as “favorite” mobile sites. This can substantially reduce the number of screens or pages that need be reviewed in order to select a particular mobile site to visit. However, it should be understood that registered users who have designated certain mobile sites as favorite mobile sites are not thereafter limited to making their selections only from among those favorites. Each such user may still choose to review and select from all of the available mobile sites within the directory.

Yet another preference feature that may be made available to registered users is an ability to post one or more messages on a “community bulletin board” that is accessible to both registered and non-registered users. This feature allows non-registered users to become aware of the messages posted by registered users, thereby encouraging further registrations and increasing use of the site.

Registered users may also be permitted to track the activity of their associated mobile sites by creating, selecting or otherwise designating an avatar whose health, personality, responses, behavior or other characteristics reflects in some manner the level of activity associated with the sites. Such an avatar may be used to provide an “at a glance” representation of the popularity, usage, traffic patterns or other characteristic(s) of a corresponding mobile site.

It is also possible to provide different levels of service for different registered users. For example, certain registered users may be permitted to elect to upgrade their registration to one or more "preferred" levels of service. The various levels of service may be designated using different colors or other sets of designations, such as "copper," "silver," "gold" and "platinum," or "individual," "individual plus," "business" and "business plus." As their registration level increases, the corresponding registered users will receive additional benefits, such as increased storage space, bandwidth or publishing features and options.

A variety of other techniques may be used to encourage user registration. For example, demographic data or other types of marketing data may be used to identify particular groups likely to benefit from registration, and particular mobile sites can be pre-created and made available to such groups on a trial basis, upon registration, or upon satisfaction of other conditions. The mobile site addresses for all of the members of each group will preferably reflect in some common way one or more unique characteristics of the group.

Referring now to FIGS. 4 and 5, these figures show a mobile site home (M-home) page **400** and a Winksite page **500**, respectively, of an example mobile site in the illustrative embodiment of the invention. The pages **400** and **500** provide user interfaces comprising series of display regions denoted by blocks **402** through **432**, and **502** through **544**, respectively, with each of the blocks being associated with a corresponding user-activatable hypertext link or other control mechanism. The mobile site home page **400** may be accessed, for example, by entering a corresponding URL of the mobile site into a browser at one of the mobile devices **15**. The Winksite page **500** may be accessed, for example, by activating the link associated with block **402** of FIG. 4 and completing an associated login process.

As noted above, FIGS. 6 through 17 are screenshots of illustrative site pages associated with a content management site in the system of FIG. 1A. These screenshots will now be described in greater detail.

With reference to FIG. 6, an example of a home page of the content management site is shown. This home page screenshot may be viewed as corresponding generally to the home page **100** schematically shown in FIG. 1D. The home page in this example includes, among other elements, elements **602** through **658** arranged as shown. A web site logo **602** can be included, along with site branding and promotional copy **638**, associated with an entity providing the content management site. A login section includes fields **604** and **606** for entering respective user name and password information, along with a "Start in" selector **608** and a login button **610**. The home page further includes links **612**, **614**, **618**, **622**, **624**, **630**, **632**, **634**, **636**, **646**, **648**, **650**, **652**, **654**, **656**, **658** and **660**, ba nner advertisements **620**, explanatory text **640**, a feedback entry field **642**, and a user information submission field **644**.

FIG. 7 shows an example of a start page of the content management site. This start page screenshot may be viewed as corresponding generally to the start page **200** schematically shown in FIG. 2. The start page in this example includes, among other elements, a logout link **700**, user account information **702**, account settings links **704**, information **706** specifying the mobile sites associated with that user, and a link **708** allowing the user to build a new mobile site.

A given registered user, after initial registration, may access his or her registration information directly, on an as-needed basis, in order to make changes therein as appropriate. For example, a registered user may wish to change his or her password or username, or to provide updated address or contact information. The account information link in the set of account setting links **704** instantiates a subordinate user

interface comprising a site page that may be configured as shown in FIG. 14. Other links in the set of account setting links **704** similarly provide access to pages allowing entry or revision of information associated with a user M-card, profile, interests, offers, etc.

FIG. 8 shows an example of a main menu page of the content management site for managing a given mobile site associated with a system user. This main menu page screenshot may be viewed as corresponding generally to the main menu page **300** schematically shown in FIG. 3. The main menu page in this example includes information **802** identifying user account information and the particular mobile sites associated with that user, page navigational links **804**, mobile site information **806** associated with a selected one of the mobile sites associated with the user, M-channel information **808**, and a delete site field **810**.

FIGS. 9A and 9B show example M-channel pages of the content management site. These pages correspond generally to particular ones of the M-channels identified in M-channel information **808** of a selected mobile site in FIG. 8.

With reference initially to FIG. 9A, the page as shown corresponds to an M-channel for which the user has not yet entered any content. The page includes a button **900** which permits a user to add an item of content to the M-channel, and explanatory text **902** which indicates that the user currently has no content in the channel, and describes the manner in which the user can add content items to the channel.

FIG. 9B shows a page for which the user has added an item of content. The page includes information **904** specifying, among other things, the title or name of the content item, the date and time of its posting to the site, and its status. If the item has a "published" status, the corresponding content is visible to users visiting the associated mobile site. If the item has an "unpublished" status, the corresponding content is not visible to users visiting the associated mobile site.

FIG. 10 shows an example page for use in adding content to a given one of the M-channels. This page may be accessed, for example, upon activation of the add button **900** in the M-channel page of FIG. 9A.

The content management site of the system **10** in the illustrative embodiment thus allows a user to manage content for access via the mobile devices **15** by interaction with one or more specified M-channels. As indicated above, a user selects a particular M-channel by activating the corresponding link **808** in FIG. 8. This action instantiates a subordinate user interface to the selected M-Channel, represented by the page shown in FIG. 9A. The user then activates the add button **900** of FIG. 9A, which instantiates a subordinate user interface to an authoring wizard associated with that M-channel, represented by the page shown in FIG. 10.

FIG. 11 shows an example page for use in managing a contact list associated with one or more of the M-channels. This page may be accessed, for example, from the main menu page **300**.

FIG. 12 shows an example page for use in adding a new contact to the contact list of FIG. 11. This page may be accessed, for example, by activating an "add an item" button in the page of FIG. 11.

FIG. 13 shows an example page for use in creating a new mobile site. This page may be accessed, for example, by activating the "build new site" link **708** in the start page of FIG. 7. The mobile site creation page includes fields allowing a user to name the mobile site, to specify a URL for the mobile site, and to enter a description of the mobile site.

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FIG. 14 shows an example page for use in establishing or updating a user account with the system. This page may be accessed, for example, as part of a registration process initiated by activating the link associated with block **104** in FIG. 1D, or by activating the link associated with block **228** of the start page in FIG. 2.

FIG. 15 shows an example page of member list results generated by performing a search in the member directory of the content management site. The directory may be accessed, for example, by activating the link associated with block **110** in FIG. 1D or the link associated with block **208** in FIG. 2.

FIG. 16 shows an example page for automated response management. This page may be accessed, for example, from the main menu page **300**.

FIGS. 17A and 17B show example pages corresponding to a user identification card or business card, also referred to herein as an M-card, or part of a contact M-channel. Such pages may be accessed, for example, by activating links associated with blocks **218** in FIG. 2 or **528** in FIG. 5.

Exemplary mobile site pages will now be described in greater detail with reference to FIGS. 18, **24** and **25**.

FIG. 18 shows an example mobile device **15**-**1** suitable for use in the system of FIG. 1A. The mobile device **15**-**1** in this example is in the form of a web-enabled mobile telephone, but as indicated previously herein, the invention does not require the use of any particular type or configuration of mobile device. The mobile device **15**-**1** as shown in FIG. 18 includes a display screen **1800** on which an example screenshot associated with a mobile site main menu page is shown. This screenshot may correspond, for example, to a portion of the page **400** previously described in conjunction with FIG. 4. Additional example screenshots that may be viewed as being generally associated with the mobile site main menu page **400** or the mobile site page **500** are shown in FIGS. 24A-24G and FIGS. 25A-25O.

The operation of certain aspects of the system **10** of FIG. 1A will now be described with reference to the flow diagrams of FIGS. 19 through 23.

FIG. 19 shows an example registration process (R) accessible via the content management site. A user enters the registration process at step **1900**, and is prompted to create a user name and password in step **1902**, to provide account information that includes a variety of personal information such as first name, last name, date of birth and gender in step **1904**, to provide mobile phone information in step **1906**, and to provide a variety of location information such as zip code, state, country and time zone in step **1908**. The entered information establishes a personal profile for the user, and is stored in a memory or other storage device associated with the content management site.

In step **1910**, the user reviews legal information pertaining to the use of the content management site and its terms of service. Step **1912** determines whether the user is of the requisite age to use the site, step **1914** determines if the user accepts specified terms and conditions, step **1916** determines if the submitted information will be accepted or declined, and step **1918** determines if valid information has been submitted. A negative determination in any of steps **1912**, **1914** and **1918** results in the process returning to step **1900** to allow the user to make at least one more registration attempt. A negative determination in step **1916** terminates the registration process and returns the user to the home page (HP) from which the registration process was initiated, as indicated at **1930**.

After positive determinations in steps **1912**, **1914**, **1916** and **1918**, a database entry is created for the user in step **1920**, a user URL and redirect file are created in step **1922**, a welcoming email is sent to the user in step **1924**, and the registration is completed in step **1926**. At this point, a user may be permitted to build a mobile site, as indicated by the transition to the site building indicator (B).

Referring now to FIG. 20, an example login process (L) accessible via the content management site is shown. A user enters a login page at step **2000**, and is requested at step **2002** to confirm that he or she is a "member," i.e., that he or she is already registered with the system. If the user is not registered, a link to the registration process (R) described previously and depicted in FIG. 19 is activated. Otherwise, step **2004** determines if the user has forgotten his or her password. If this is the case, steps **2006** through **2012** are executed to prompt the user to enter a user name, and/or other identifying information, and to click a send button, such that an email containing the forgotten password is then sent to the user, after which the process returns to step **2000**. A negative determination in step **2004** results in execution of steps **2014** through **2018**, prompting the user to enter a user name and password, to select an area of the content management site to start in, and to click a button to submit the login information. Step **2020** determines if the submitted login information is correct. If it is, the process ends, and the user can be directed, for example, to the home page (HP), the directory (D), the start page (SP), or to any other desired page of the site. The resulting presented page is preferably customized to include information specific to the user, such as the information shown generally at **702** in FIG. 7.

If the login information entered by the user is incorrect, the process may return to step **2000** so that correct or more current login information may be submitted. While in some embodiments of the invention these verification steps could be repeated indefinitely, it is preferable to place a limit on the number of times that the system will continue to attempt such verification without success, after which the login process will end and no further submissions of login information will be accepted from that user until some specified remedial action takes place. Similar restrictions may be placed on repetition of the registration process previously described in conjunction with FIG. 19.

FIG. 21 shows an example process for creating a mobile site using the content management site. This process may be accessed, for example, upon completion of the registration process, or upon activation of the link associated with block **226** of FIG. 2. After initiation of the mobile site creation process in step **2100**, the user is prompted in step **2102** to enter a site title, in step **2104** to enter a site URL, in **2106** to enter a site description, in step **2108** to enter a category, and in step **2110** to enter keywords. Steps **2102** to **2110** should be viewed as examples of the type of information a registered user could be asked to enter in order to create the mobile site, but a given mobile site in accordance with the invention can of course be created using other types of information.

Step **2112** determines if the submitted information is to be saved or canceled. The latter results in the process being directed to the home page (HP), the start page (SP), or other specified page of the content management site. If the submitted information is to be saved, step **2114** determines if the submitted information is valid. If the submitted information is not valid, the process returns to step **2100** to allow the user at least one additional attempt to create the mobile site. A positive determination in step **2114** results in the execution of content and/or data device formatting step **2116**, database entry creation step **2118**, and site URL and redirect file creation step **2120**. The URL is used to access the mobile site that is created as a result of the FIG. 21 process.

Step **2122** represents the start of an M-channel selection wizard. From the M-channel selection wizard step, the user can choose a template, task and/or goal in step **2124**, choose appropriate fields in step **2126**, and select desired options in step **2130**. At this point, the process generates the appropriate rules for the display engine in step **2132**, and then activates or otherwise generates one or more M-channels for the mobile site in step **2134**. The result is a site specific M-channel list as indicated in step **2146**, an example of which was previously described in conjunction with the screenshot of FIG. 8. Supplementary to this portion of the process, the user is also provided with an opportunity in steps **2136**, **2138**, **2140**, **2142** and **2144** of FIG. 21 to add additional M-channels, options, external services, and the like to the mobile site. Any such added elements are taken into account in generating the site specific M-channel list in step **2146**. At the completion of step **2146**, the process returns to the main menu (MM), from which the M-channel wizard step **2122** can again be initiated to further modify the previously-created mobile site.

Turning now to FIG. 22, an example process for content authoring at the content management site is shown. The user in step **2202** selects a particular M-channel for which the content is to be authored. Step **2204** generates an M-channel content list, and step **2206** allows the status of the various content items to be changed from published to unpublished and vice-versa. Steps **2208** and **2210** allow content items on the M-channel content list to be erased. From the M-channel content list generated in step **2204**, an item authoring wizard may be initiated in step **2212**. This wizard facilitates the authoring of a content item by prompting the user to enter date and time in step **2214**, to enter a title in step **2216**, to enter message content, data template or both in step **2218**, to select or upload media in step **2220**, to select distribution, delivery and service options in step **2224**, and to select publishing options in step **2226**.

Selectable or uploadable media may include, for example, an XML/RSS feed, a database entry, a syndication item, a document, a video, a photo, a graphic, a music file, etc. Distribution, delivery and service options may include, for example, a distribution list based on group(s) or individual(s), SMS delivery, MMS delivery, email delivery, WAP availability, syndication availability, particular content to be combined or otherwise integrated with the content item upon delivery, etc. The publishing options may specify launch date, expiration date, private, public, group-specific, etc.

Step **2230** determines if a save button or a cancel button has been activated. Activation of the cancel button returns the process to the M-channel content list in step **2204**. Activation of the save button causes formatting of the message content and/or data device in step **2232**. Step **2234** determines if media has been selected for upload. If so, the selected media is uploaded in step **2236**. In any case, step **2238** then determines if distribution, delivery and service options have been set. A positive determination results in the setting of the distribution, delivery and service options in step **2240**. The process then proceeds to step **2242**, in which the generated content item and its associated settings are saved, preferably by storage in a database or other memory or storage device of the system, as indicated at **2244**. The process then returns to the M-channel content list in step **2202**.

Step **2246** initiates a distribution, delivery and service engine which sends the content item out to a rules-based display engine in step **2250** which then, driven by the options previously selected in steps **2224** and **2226**, handles the presentation of the content in a manner appropriate to the mobile devices **15** on which it is to be viewed. The distribution, delivery and service engine may also take into account one or more external services **2248** as indicated. The display engine further provides appropriate interaction mechanisms consistent with the content and its associated options. In addition, alerts and/or

other messages can be sent out in step **2252** based on options selected in step **2224** for notifying the recipient(s) that the content item is now available for access via the mobile site. The M-channel content list, and more specifically the item view associated with the particular content item, are updated as appropriate, in steps **2254** and **2256**.

FIG. 23 shows an example directory process that may be implemented at the content management site. The directory process is initiated in step **2302**, and in step **2304** permits a user to go directly to another user, which may result in the retrieval at step **2306** of the identification card or business card, also referred to herein as an M-card, of the other user. It is also possible in step **2314** to perform a member search, which may include specifying in steps **2316**, **2318** and **2320** the respective beginning, containing or ending parameters of the member name. This leads to a member results list in step **2321** that can be used to retrieve one or more M-cards in step **2306**. Another option is to view a member list, as indicated in step **2322**, from which the user can select a letter and/or a number, leading again to a member results list in step **2321**. The M-cards retrieved in step **2306** can be used to provide user profile information in step **2308**, to view a mobile site or sites associated with the corresponding user(s) in step **2310**, or to call via direct dial or otherwise the corresponding user(s) in step **2312**. The direct dial call may be placed to a phone (P) or any other device capable of participating in a voice or data call.

It is also possible from the directory step **2302** to initiate a site search in step **2330**, which may include specifying in steps **2332**, **2334** and **2336** the respective beginning, containing or ending parameters of the desired site. This leads to a site results list in step **2338** that can be used to retrieve one or more user mobile sites in step **2340**. Other mobile site directory functions include generation of a site list in step **2350**, leading to user selection of a letter and/or a number in step **2352**, generation of site categories in step **2360**, leading to user selection of a category in step **2362**, and generation of keywords in step **2370**, leading to user entry of a particular keyword or keywords in step **2372**. Each of these functions results in generation of a site results list in step **2338**, from which a user mobile site can be accessed in step **2340**.

It is to be appreciated that the processes and their associated steps as described in conjunction with the operational flow diagrams of FIGS. 19 through 23 are merely exemplary, and the invention does not require the particular steps shown, or their particular order of execution.

The above-described illustrative embodiment of the invention provides a number of significant advantages relative to conventional techniques.

For example, the system **10** as described herein is advantageous in that it can be used to allow content providers to cost-effectively publish, distribute and generate revenue from a mobile content service.

Also, the system provides a platform for the development of a wide variety of personalized content applications for users of mobile devices, thereby allowing wireless network service providers not only to increase their subscriber base, but also to reduce turnover in their subscriber base.

Furthermore, the invention allows users to more efficiently communicate, collaborate and otherwise interact with their friends or colleagues instantly and seamlessly within a single system that provides a mobile web site integrating existing wireless networking functionalities, such as IM, SMS, MMS, location-based services, or email, with personally authored content.

Yet another advantage of the system described in conjunction with the illustrative embodiment is that it does not require users to download and install any particular client-side software. The generation of a given mobile site and the management of the content associated therewith is driven in the illustrative embodiment from the content management site at the server side of the system, accessible via a standard browser. The system is configured to operate independently of the user device operating system or other user device configuration parameters, such that a given user may author, create, publish, send, convey, share, receive, respond to, subscribe to, collaborate with, track, transact, maintain and manage personalized messaging content from any type of user device running any operating system.

It should again be emphasized that the illustrative embodiment as described above is presented by way of example only, and should not be construed as limiting in any way. Numerous alternative embodiments within the scope of the appended claims will be readily apparent to those skilled in the art.