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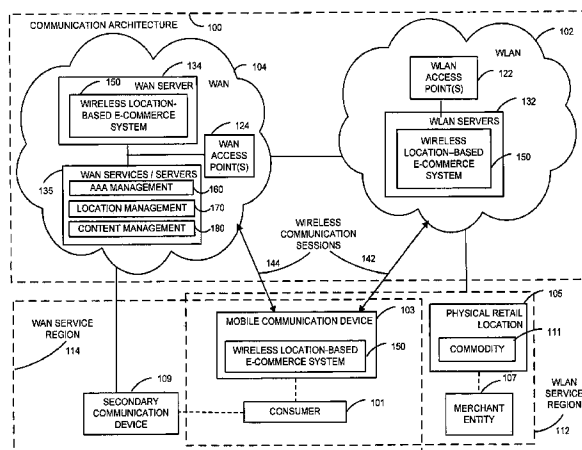
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(54) Title: WIRELESS, LOCATION-BASED E-COMMERCE FOR MOBILE COMMUNICATION DEVICES

(57) Abstract: Wireless-enabled mobile communication devices and network nodes are configured for participation in wireless, location-based e-commerce activities. Consumers using mobile communication devices in the vicinity of physical retail locations receive opportunities to engage in e-commerce, using their mobile communication devices, with merchants operating the physical retail locations. In an exemplary e-commerce transaction, a wireless communication session is established between a mobile communication device and a wireless network access node, which may be associated with a wireless local area network ("WLAN") or a wide-area network ("WAN"). Via the wireless communication session, a consumer receives a virtual retail experience associated with the physical retail location, and an exchange of consideration between the consumer and the merchant entity is arranged. In exchange for consideration from the consumer, the consumer receives commodity.

WIRELESS, LOCATION-BASED E-COMMERCE FOR MOBILE COMMUNICATION DEVICES

BACKGROUND

[0001]   Electronic networking opportunities are virtually ubiquitous. Users with devices such as personal computers ("PCs"), personal digital assistants, portable digital media players, and mobile phones are able to access wide-area networks ("WANs") and local-area networks ("LANs") in a wide variety of venues using various protocols and techniques. WANs are wireless or wired geographically dispersed networks generally covering geographic regions of more than a few hundred meters. The Internet, cellular networks, satellite networks, and cable networks are some examples of WANs. Local-area networks ("LANs") are wireless or wired networks that facilitate the transmission or · receipt of information within relatively small physical areas surrounding a device or an entity such as a person or a business (generally, up to a few hundred meters). A wireless LAN ("WLAN") is generally identified by the air interface protocol(s) used for communication within the WLAN. Currently popular air interface protocols include the Wireless Fidelity ("WiFi") series of protocols promulgated by the Institute of Electrical and Electronics Engineers ("IEEE").

[0002]   WANs such as cellular and satellite networks are generally accessible in outdoor areas in all but the most remote areas of many countries. Increasingly, WLANs are available to the public within areas such as retail locations, which are premises at which merchant entities accept consideration from consumers for the transfer of commodities. Examples of retail locations include but are not limited to stores, malls, transportation hubs, hotels, cafes, city blocks, movie theaters, museums, theme parks, and performance venues (such as concert facilities, theaters, and the like). WLAN coverage areas are often referred to as "hotspots". Generally, a hotspot operator offers Internet access, via a variety of access mechanisms, to wireless-enabled devices within the hotspot.

[0003]   It is desirable to provide customizable, wireless, location-based systems and services that are operable with WANs or WLANs, via which users of mobile communication devices in the vicinity of physical retail locations receive specific opportunities to engage in e-commerce, using their mobile communication devices, with merchants operating the physical retail locations.

[0004]   It will be appreciated that the claimed subject matter is not limited to implementations that solve any or all of the disadvantages of specific wireless services, systems or aspects thereof.

SUMMARY

[0005]   Aspects of the configuration and operation of mobile communication devices and networked servers for participation in wireless, location-based e-commerce activities are discussed herein. In particular, consumers using mobile communication devices in the vicinity of physical retail locations receive opportunities to engage in e-commerce, using their mobile communication devices, with merchants operating the physical retail locations. Various network entities may host different aspects of the e-commerce opportunities.

[0006]   Certain activities associated with methods, systems, apparatuses, and articles of manufacture discussed herein include identifying a retail location proximate to a location of a mobile communication device operated by a consumer, and arranging for the establishment of a wireless communication session between the mobile communication device and a wireless network access node, which may be a node of a wireless local area network ("WLAN") or a wireless wide-area network ("WAN"). If the node via which the communication session is established is associated with a WLAN containing two or more access points, a location of the mobile communication device within a predefined service region of the WLAN is ascertained. The predefined service region may include one or more retail locations. For example, the predefined service region may be sub-divided into a number of physically or logically defined sub-regions corresponding to individual retail locations. An example of a predefined service region is a mall, which may include one or more physical retail locations and may have affiliated retailers without physical presences in the mall.

[0007]   One activity occurring via the wireless communication session includes arranging for the consumer to receive information regarding a commodity that is available for transfer on behalf of the merchant entity. Another activity occurring via the wireless communication session is arranging for an exchange of consideration between the consumer and the merchant entity. In exchange for consideration from the consumer, the consumer receives the commodity. The commodity may be a commodity at a retail location or a digital commodity. Examples of digital commodities include but are not limited to digital media files (such as audio files, video files, text files, multimedia files, data files, playlists, metadata files, or streaming digital media content), redeemable

electronic articles (such as coupons, certificates, or redeemable points), and wireless services.

[0008] In one scenario, a user interface associated with a particular retail location is presented to the consumer via the wireless communication session, and the consumer receives information regarding the commodity via the user interface. In this manner, the consumer has a "virtual retail experience" that complements his experience at or proximate to a particular physical retail location.

[0009] Certain virtual retail experiences can "follow" a consumer. For example, whenever a consumer visits a particular service region of a WLAN, aspects of the consumer's virtual retail experience(s) may be tracked and used to customize aspects of future virtual retail experiences. In another example, with a user's permission, a WAN may monitor the location of a mobile communication device for the purpose of presenting the user with e-commerce opportunities on behalf of nearby merchants, even when the mobile communication device is not near a predefined service region of a WLAN.

[0010] Consumer profiles represent one or more collections of information about consumers and/or the data consumers provide to, request from, use (or which is used) in connection with commerce with physical or virtual merchant entities. Consumer profiles may be used for various purposes, such as for identifying retail locations, customizing user interfaces, and forming affiliations between various parties desiring to extract value from e-commerce opportunities presented to consumers using the methods, systems, apparatuses, or articles of manufacture discussed herein.

[0011] This Summary is provided to introduce a selection of concepts in a simplified form. The concepts are further described in the Detailed Description section. Elements or steps other than those described in this Summary are possible, and no element or step is necessarily required. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended for use as an aid in determining the scope of the claimed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a simplified functional block diagram of a communication architecture via which a consumer operating a mobile communication device in the vicinity of a physical retail location receives opportunities to engage in wireless, location-based e-commerce with a merchant operating the physical retail location.

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[0013]   FIG. 2 is a simplified functional block diagram of a wireless, location-based e-commerce system configured for operation with aspects of the communication architecture and mobile communication device shown in FIG. 1.

[0014]   FIG. 3 is a message sequence chart illustrating certain aspects of a wireless, location-based e-commerce method performed by aspects of the system shown in FIG. 2.

[0015]   FIG. 4 is a simplified functional block diagram of an exemplary configuration of an operating environment in which the system shown in FIG. 2 may be implemented or used.

DETAILED DESCRIPTION

[0016]   Prior to turning to the drawings, an alphabetical list of certain terms and their definitions is provided. Other terms and their definitions are provided elsewhere in the Detailed Description section.

[0017]   Advertisement. An Advertisement is any promotion of a product or service.

[0018]   Commodity. A Commodity is something useful (for example, a tangible or intangible good or service) that can be turned into commercial or other advantage.

[0019]   Consideration. Consideration is something of value given by one party to another in exchange for an act or promise.

[0020]   Consumer. A Consumer is a person that acquires Commodities for personal use.

[0021]   E-commerce. E-commerce is the exchange of Consideration for Commodities over a computer network.

[0022]   Merchant Entity. A Merchant Entity is a person or business that operates a Retail Location, or on behalf of which a Retail Location is operated.

[0023]   Mobile Communication Device. A Mobile Communication Device is any electronic device (or any physical or logical element of such an electronic device, either standing alone or included in other devices), which is configured for mobile wireless communication and which is responsive to a Consumer. A Mobile Communication Device is generally not a fixed-purpose device provided for specifically for use at a particular Retail Location, however.

[0024]   Redeemable Article. A Redeemable Article is anything that is issued with the expectation of Redemption. A Redeemable Article can be used by a Consumer as Consideration in exchange for a Commodity transferred by or on behalf of a Merchant Entity. A Redeemable Article may also be a Commodity.

[0025]   Redemption. Redemption is the process by which an article, such as a Redeemable Article, is taken back by or on behalf of the issuer of the article. One manner

in which an article may be taken back is when the article is accepted by a Merchant Entity
as Consideration in exchange for a Commodity.

[0026]   Retail Location. A Retail Location represents premises (land, buildings, or
portions thereof) at which a Merchant Entity accepts Consideration from Consumers for
transferring Commodities.

[0027]   Turning to the drawings, where like numerals designate like components, FIG. 1
is a simplified functional block diagram of a communication architecture 100 via which a
Consumer 101 operating a Mobile Communication Device 103 in the vicinity of a physical
Retail Location 105 receives opportunities to engage in wireless, location-based E-
commerce with a Merchant Entity 107 operating physical Retail Location 105.

[0028]   Among other things, Mobile Communication Device 103 includes aspects of a
wireless, location-based e-commerce system 150 (discussed further below, in connection
with FIG. 2). A secondary communication device 109, also responsive to Consumer 101,
is also shown and discussed further below.   Secondary communication device 109 is any
wired or wireless electronic device authorized for use by Consumer 101.

[0029]   Communication architecture 100 includes a wireless local area network
("WLAN") 102 and a wide-area network ("WAN") 104. WLAN 102 represents one or
more local wireless networks serving WLAN service region 112. WLAN service region
112 is a relatively small physical area (for example, up to a few hundred meters) within
which wireless communications are established between nodes. A WLAN type is
generally identified by the air interface protocol(s) used for communication between nodes
therein. Currently popular WLAN air interface protocol(s) include the Wireless Fidelity
("WiFi") series of protocols promulgated by the Institute of Electrical and Electronics
Engineers ("IEEE"). It will be appreciated, however, that any air interface protocol now
known or later developed by be used for local communication.   For example, local peer-
to-peer communication protocols and techniques or cable replacement technologies such
as Bluetooth may be used in conjunction with or in lieu of WLAN 102.   It will be
appreciated that the physical boundaries of WLAN service region 112 may be defined by
dynamic parameters such as signal strength, access point location, and relationships
between network operators, among other parameters.

[0030]   A WLAN node is a processing location within WLAN 102 that has a unique
address or identifier, such as a media access control ("MAC") address or an Internet
Protocol ("IP") address. Nodes may be fixed or mobile. Examples of fixed nodes include
WLAN access point(s) 122 (discussed further below) and WLAN server 132, which hosts

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aspects of wireless, location-based e-commerce system 150 (also discussed further below). An example of WLAN server 132 is a point-of-presence server operated in a particular hotspot. WLAN server 132 may implement local services, or may serve as a proxy for services offered remotely by third parties such as an operator of WAN 104 or a third-party

5   network-based service provider. Examples of mobile nodes include communication devices operated by people within WLAN service region 112, such as Mobile Communication Device 103 operated by Consumer 101.

[0031]   WAN 104 represents one or more wirelessly-accessed, dispersed networks covering one or more geographic regions of more than a few hundred meters. WAN 104

10   serves WAN service region 114, among other regions. WAN service region 114 is a physical area of any size within which wireless communications are established with WAN 104. It will be appreciated that the physical boundaries of WAN service region 114 may be defined by dynamic parameters such as signal strength, access point location, and relationships between network operators, among other parameters. As shown, WAN

15   service region 114 partially overlaps WLAN service region 112. It will be appreciated that such overlap is not necessary, and that less or more overlap is possible.

[0032]   WAN 104 may be a packet-switched network or a circuit-switched network (or a combination thereof), supporting communication between WAN nodes using various wired or wireless protocols. A packet-switched network routes packets of data between

20   nodes of the WAN based on destination addresses of the equipment. The Internet is one example of a packet-switched WAN. In a circuit-switched network, a physical path or communication channel is dedicated to a connection between nodes. Examples of circuit-switched WANs are portions of the public switched telephone network ("PSTN") and radio frequency communication networks such as certain cellular or satellite

25   communication networks.

[0033]   A WAN node is a processing location within WAN 104 that has a unique address or identifier. WAN nodes may be fixed or mobile. An example of a mobile node is Mobile Communication Device 103. Examples of fixed nodes include WAN access point(s) 124 (discussed further below); WAN server 134, which hosts aspects of wireless,

30   location-based e-commerce system 150 (also discussed further below); and WAN server(s) 135, which host other WAN services, such as authentication, authorization, and accounting ("AAA") management 160, location management 170, and content management 180. Examples of WAN servers 134 and 135 are application servers

operated by WAN operator, or operated by third parties (such as an operator of WLAN

102 or third party network-based service providers) and proxied by WAN 104.

[0034]   WLAN 102 is accessed via one or more WLAN access points 122 and WAN is

accessed via one or more WAN access points 124. Access points 122 and 124 are

5   physical or logical elements that provide points of entry into infrastructure or services

associated with WLAN 102 and WAN 104, respectively. In particular, WLAN access

points 122 are used for establishing wireless communication session 142 between Mobile

Communication Device 103 and one or more nodes of WLAN 102, and WAN access

points 124 are used for establishing wireless communication session 144 between Mobile

10   Communication Device 103 and one or more nodes of WAN 104. Internal arrangements,

architectures and principles of operation of access points are well known. Although

discrete access points 122 and 124 are shown, it will be appreciated that a single access

point may serve as both a WLAN access point and as a WAN access point in a particular

geographic area.

15   [0035]   Wireless communication session 142 represents any wireless, local, physical or

virtual connection between a node of WLAN 102 and Mobile Communication Device 103

established for wireless, location-based e-commerce as discussed herein. Wireless

communication session 144 represents any wireless, physical or virtual connection

between a node of WAN 104 and Mobile Communication Device 103 established for

20   wireless, location-based e-commerce as discussed herein.

[0036]   With continuing reference to FIG. 1, FIG. 2 is a simplified functional block

diagram of wireless, location-based e-commerce system (referred to for discussion

purposes as "Virtual Retail System") 150, aspects of which are usable with Mobile

Communication Device 103 and one or more networked servers within communication

25   architecture 100 to present Consumer 101 with opportunities to engage in E-commerce

with merchant entity 107 when Mobile Communication Device 103 is in the vicinity of

physical Retail Location 105.

[0037]   Virtual Retail System 150 includes one or more virtual retail experiences 201;

network interface(s) 206; a location manager 262; a commodity transfer manager 208; and

30   an information repository 210, which further includes information regarding commodity

information 214, Advertisements 216, consumer profile(s) 218, and communication

session information 220. Key to the implementation of Virtual Retail System 150 is a

common set of network-facing methods for accessing the different components that

implement functions just described. These methods may include, but are not limited to,

models and/or protocols for communicating with network-based services. Corresponding methods and/or protocols are also implemented by Mobile Communication Device 103 to enable it to communicate with Virtual Retail System 150. It is to be appreciated that neither Virtual Retail System 150 nor Mobile Communication Device 103 are specially

5   configured for communication with each other through proprietary means, rather communication is through mutually agreed upon sets of methods and/or protocols. Mobile Communication Device 103 is thereby enabled to communicate with any number of virtual retail experiences 201 built according to the standards of Virtual Retail System 150. In general, design choices dictate how specific functions of Virtual Retail System

10   150 are implemented. Such functions may be implemented using hardware, software, firmware, or combinations thereof.

[0038]   Virtual retail experiences 201 represent the manners in which E-commerce is conducted between Consumers and Merchant Entities operating physical Retail Locations and hosting aspects of Virtual Retail Systems 150. One possible implementation of virtual

15   retail experiences 201 are user interface(s) 202 (which may be stored by Mobile Communication Device 103, WLAN 102, or WAN 104) presented by Mobile Communication Device 103. It will be appreciated, however, that configuration and use of Virtual Retail System 150 is not dependent on any particular implementation of virtual retail experiences 201.

20   [0039]   In one implementation, each individual Merchant Entity has a unique virtual retail experience 201 associated therewith. As such, Merchant Entities (for example, a number of warehouse-style electronic stores) in different Retail Locations may share the same virtual retail experience 201. In another implementation, individual physical Retail Locations may have unique virtual retail experiences. In a further implementation, virtual

25   retail experiences 201 may be associated with predefined service regions of WLANs, such as WLAN service region 112. The predefined service region may include one or more Retail Locations. For example, the WLAN service region 112 may be sub-divided into a number of physically or logically defined sub-regions corresponding to individual Retail Locations. One or more of such Retail Locations may share, or be accessed via, the same

30   virtual retail experience 201, or virtual retail experiences associated with a number of Retail Locations may be grouped together. Examples of predefined service regions include but are not limited to stores, malls, airports, cafes, city blocks, movie theaters, museums, theme parks, and performance venues. Examples of sub-regions corresponding to individual Retail Locations include individual stores or departments thereof, and areas

at which common Commodities or activities are aggregated. In a still further implementation, a generic virtual retail experience may be used in a standard manner for E-commerce between a Consumer and multiple Merchant Entities/physical Retail Locations. It will be appreciated that while WLAN and WAN access nodes are generally

5   fixed in a particular location, services, such as services associated with Virtual Retail System 150, may be hosted in many physical or virtual locations.

[0040]   Network interface(s) 206 represent one or more physical or logical elements, such as connectivity devices or computer-executable instructions, that enable wireless communication (via communication sessions 142 or 144, for example) between Mobile

10   Communication Device 103 and a network (such as WLAN 102 or WAN 104) using one or more protocols or techniques. Information received at a given network interface may traverse one or more of the seven vertical layers of the OSI Internetworking Model: layer 1, the physical layer; layer 2, the data link layer; layer 3, the network layer; layer 4, the transport layer; layer 5, the session layer; layer 6, the presentation layer; and layer 7, the

15   application layer.

[0041]   Location manager 262 is responsible for ascertaining locations of Mobile Communication Device 103 and identifying one or more physical Retail Locations 105 to which Mobile Communication Device 103 is proximate. Location manager 262 may also handle certain aspects of establishing communication sessions 142 or 144 via network

20   interface(s) 206. More specifically, location manager 262 ascertains whether Virtual Retail System 150 is configured for operation in a service region in which Mobile Communication Device 103 is disposed, and identifies the network hosting Virtual Retail System 150. Based on the location of Mobile Communication Device 103 within a particular service region, location manager 262 identifies one or more physical Retail

25   Locations 105 to which Mobile Communication Device 103 is proximate and/or identifies the Consumer's preferred virtual retail experience(s) 201 associated with the physical Retail Locations 105. In one example, if a WLAN service region (for example, a WiFi hotspot) that hosts a Virtual Retail System 150 is accessible to Mobile Communication Device 103, location manager 262 may identify one or more physical Retail Locations 105

30   within the WLAN service region. As such, the proximity of the Mobile Communication Device to the WLAN service region is ascertained, as well as optionally the relationship of the Mobile Communication Device to fixed locations within the service region. In another example, if a WAN service region (for example, a cellular service) that hosts a Virtual Retail System 150 is accessible to Mobile Communication Device 103, location manager

262 may identify one or more nearby physical Retail Locations 105 using geocoding coupled with consumer profiling. The case of the WAN service region is illustrated by a mobile phone user on a car trip. Because the user has authorized his location to be tracked (via a cellular service, for example), location manager 262 can detect that the user is in the

5   vicinity (however vicinity is defined, perhaps six miles or sixty miles or any other physical or logical definition desired) of an affiliated service and can notify the user of a promotion at the affiliated location using a means other than WLAN, such as short-messaging service, text messaging, or any other known or future wireless communication facility. . These and other aspects of the operation of location manager 262 are discussed further

10   below, in connection with FIG. 3.

[0042] Commodity transfer manager 208 is configured to implement certain aspects of an E-commerce transaction between Consumer 101 and merchant entity 107 when Mobile Communication Device 103 is proximate to a selected physical Retail Location 105 operated by merchant entity 107. More specifically, commodity transfer manager 208

15   handles: distribution of commodity information 214, which is information regarding Commodities that are available for transfer to the Consumer on behalf of the Merchant Entity; exchanges of Consideration between the Consumer and the Merchant Entity for Commodities; and (optionally) transfer of certain digital Commodities to a communication device selected by Consumer 101 (such as Mobile Communication Device 103 or

20   secondary communication device 109). Commodity transfer manager 208 may also handle certain aspects of establishing communication sessions 142 or 144 via network interface(s) 206. As such, commodity transfer manager 208 generally implements one or more features of a service for identifying, enumerating and exchanging objects over a network. Aspects of the operation of commodity transfer manager 208 are discussed

25   further below, in connection with FIG. 3.

[0043] Information repository 210 represents general data storage capability for information relating to E-commerce transactions conducted using Virtual Retail System 150. Information repository 210 may be implemented using various types and arrangements of computer-readable media 404 (discussed further below, in connection

30   with FIG. 4) within Mobile Communication Device 103, WLAN 102, or WAN 104. Information storable within information repository 210 includes but is not limited to information used to implement virtual retail experiences 201, such as user interfaces 202; commodity information 214; Advertisements 216; consumer profile(s) 218; and communication session information 220.

[0044]   User interfaces 202 represent displays and/or controls that implement one or
more virtual retail experiences 201 on Mobile Communication Device 103. Displays are
used to receive input from, or provide output to, a Consumer. An example of a physical
display is a monitor device. An example of a logical display is a data organization

5   technique (for example, a window, a menu, or a layout thereof). Controls facilitate the
receipt of input from a Consumer. An example of a physical control is an input device
such as a remote control, a display, a mouse, a pen, a stylus, a trackball, a keyboard, a
microphone, or a scanning device. An example of a logical control is a data organization
technique (for example, a window, a menu, or a layout thereof) via which a Consumer

10   may issue commands. It will be appreciated that the same physical device or logical
construct may function as an interface for both inputs to, and outputs from, a Consumer.

[0045]   Commodity information 214 represents information about Commodities
available for transfer to Consumers on behalf of merchant entities. Examples of
Commodities include Commodities transferable at Retail Locations, and digital

15   Commodities. Examples of digital Commodities include but are not limited to: digital
media items (for example, audio files, image files, video files, text files, multimedia files,
data files, playlists, metadata, and streaming media); network services (such as Internet
access, email access, and the like); and Redeemable Articles such as coupons, certificates,
or redeemable points or other rewards. Digital Commodities may be in any format now

20   known or later developed, such as portable network graphics ("PNG"), joint photographic
experts group ("JPEG"), moving picture experts group ("MPEG"), multiple-image
network graphics ("MNG"), audio video interleave ("AVI"), extensible markup language
("XML"), hypertext markup language ("HTML"), extensible HTML ("XHTML"), MP3,
WAV, WMA, WMV, ASF, or any format via which digital content may be provided in

25   real-time or streamed. It will be appreciated that Commodities may be tangible or
intangible, and may have more than one element. One example of an intangible
Commodity is a license, such as a license to use software or to play a music file.

[0046]   Advertisements 216 represent any promotion of a product or service presentable
via a Mobile Communication Device, in any format. In the context of Virtual Retail

30   System 150, Advertisements 216 may be presented by or on behalf of any party, including
(but not necessarily) a particular Merchant Entity. Advertisements may be provided via
Virtual Retail System 150, stored on Mobile Communication Device 103, and/or obtained
from one or more third parties. Advertisements may be general advertisements or directed
advertisements. General advertisements are created to appeal to a generally wide audience

(for example, the general public or some portion thereof). Directed advertisements, also referred to as targeted advertisements, are designed to appeal specifically to a particular segment of the population. Some types of directed advertisements, often referred to as customized advertisements, are designed to reach specific individuals or groups of

5   individuals.

[0047]   Consumer profiles 218 represent one or more collections of information about a Consumer and the data the Consumer provides to, requests from, or uses/is used in connection with commerce with physical or virtual merchant entities. As such, certain information within consumer profiles 218 may be received directly from a Consumer, such

10 as Consumer 101. For example, Consumer 101 may input data into Mobile Communication Device 103 or supply data to a Merchant Entity at a physical Retail Location (such as by completing a survey or by using a membership card at the Retail Location). Other information within consumer profiles 218 may be collected based on E-commerce activities or other behaviors of the Consumer. For example, certain

15 communication session information 220 (discussed further below) may be included in consumer profiles 218. Consumer profile(s) 218 may be used for any purpose within Virtual Retail System 150, and are especially useful for customizing operation of Virtual Retail System 150 for particular Consumers. To address privacy concerns, the Consumer may have control over whether and/or which information is collected and included in

20 consumer profile(s) 218, and may also have control over how or by whom such information is used or accessed. Consumer profile(s) 218 are discussed further below, in connection with various aspects of the method sequence chart of FIG. 3.

[0048]   Communication session information 220 represents pertinent information about E-commerce transactions completed using Virtual Retail System 150 (such as parties

25 involved, commodity information 214 transferred, locations where the transactions occurred, and the like). Communication session information 220 may be used by Consumer 101, Mobile Communication Device 103, or networks hosting aspects of Virtual Retail Systems for various purposes, such as for updating consumer profile(s) 218.

[0049]   With continuing reference to FIGs. 1 and 2, FIG. 3 is a message sequence chart

30 illustrating certain aspects of a method for a wireless, location-based E-commerce. Aspects of the method are usable with Mobile Communication Device 103 and one or more networked servers within communication architecture 100 (such as WLAN server 132 or WAN servers 134 or 135) to present Consumer 101 with opportunities to engage in E-commerce with merchant entity 107—via one or more virtual retail experiences 201—

when Mobile Communication Device 103 is in the vicinity of a particular physical Retail Location 105. The method(s) illustrated in FIG. 3 may be implemented using computer-executable instructions executed by one or more general, multi-purpose, or single-purpose processors (exemplary computer-executable instructions 406 and processor 402 are

5   discussed further below, in connection with FIG. 4). Method steps involving "arranging for" a particular act to occur include both client-side acts and network-side acts. Unless specifically stated, the methods described herein are not constrained to a particular order or sequence. In addition, some of the described method or elements thereof can occur or be performed concurrently. It will also be understood that all of the described messaging

10   need not occur in each E-commerce transaction, and the type, quantity, and implementation of specific messaging is a matter of implementation preference. For example, dotted-line messaging is generally optional and/or may not occur in each E-commerce transaction (based on whether Virtual Retail System 150 is hosted by WLAN 102 or WAN 104, for example).

15   [0050] For exemplary purposes, two E-commerce transactions are discussed—one using a sports retailer as an example, and another using an electronics warehouse store that offers music and other digital goods for download via a Virtual Retail System 150. It is assumed that Mobile Communication Device 103 possesses or has acquired an IP address usable for communication within WLAN 102 and/or WAN 104. The exemplary E-

20   commerce transaction involves a Consumer (referred to as "Bob") carrying a dual-mode WLAN-enabled/cellular mobile phone in the vicinity of a WiFi hotspot within which a large electronics storeis located. A Virtual Retail System 150 is hosted by a WLAN access point 122 (or other network node, such as WLAN server 132) on behalf of the electronics store. Bob is authorized to use his cellular service in and around the

25   electronics store, and a Virtual Retail System 150 with which the electronics store is affiliated is hosted by an entity outside of the WLAN (for example, by a network-based music service, a wireless service provider such as Boingo Wireless, or even the Merchant Entity associated with the electronics store).

[0051] Initially, consumer profiling 301 is discussed. Consumer profiling 301

30   represents acts (performed by Consumer 101, Mobile Communication Device 103, WLAN 102, or WAN 104 at any step of the method illustrated in FIG. 3) associated with creating, updating, or using consumer profiles 218. Examples of consumer profiling 301 include but are not limited to acts regarding collecting or using a Consumer's: purchasing patterns; personal information (for example, name, address, gender, and age); service

profiles (whether a user has opted-in to participation wireless, location-based E-commerce transactions, for example, and opt-in conditions, if any); Retail Location affiliations; device- and network-gathered location information; device- and network-gathered communication session information 220; and other behavior-related data, such as Internet

5 activities, e-mail activities, general travel patterns, and the like.

[0052] Bob, for example, has developed a strong affiliation with a large chain of sporting goods stores, and the Merchant Entity associated with the sporting goods stores is generally familiar with Bob's interests--Bob has filled out surveys at the sporting goods stores, and he uses a membership card for in-store purchases. Bob also frequently visits a

10 Virtual Retail System 150/virtual retail experience 201 hosted on behalf of a sporting goods store in a local WiFi hotspot, and he has agreed to allow the Merchant Entity associated with the sporting goods stores to determine his location via his cellular service and to offer promotional Commodities based on his current location. The Merchant Entity associated with the sporting goods stores has constructed a consumer profile 218

15 associated wtih Bob. The consumer profile includes information obtained from the surveys, membership card use, E-commerce transactions conducted within the local WiFi hotspot, and Bob's whereabouts obtained via his cellular service. In one example of consumer profiling 301, the Merchant Entity associated with the sporting goods stores uses Bob's consumer profile to infer that he is interested in kayaking, and promotes an

20 affiliation with a kayak rental company it identifies as located in the strip mall adjacent to the electronics store. A WiFi hotspot is not accessible in the vicinity of the kayak rental company. In addition, Bob's location near the kayak rental company and the associated demographics compiled by the Merchant Entity associated with the sporting goods stores make him a candidate to receive a targeted Advertisement 216 for a kayak adventure

25 vacation. Note that while there is no specific Virtual Retail System 150 within the local vicinity capable of completing the necessary E-commerce transaction to purchase the kayak adventure vacation, Bob's consideration of the opportunity enabled a transaction between the kayak rental company and the adventure vacation service.

[0053] Referring to message sequence chart of FIG. 3, the exemplary E-commerce

30 transaction begins when the presence or location of Mobile Communication Device 103 is ascertained within WLAN 102 or WAN 104. The presence or location of Mobile Communication Device 103 may be ascertained on a periodic basis. It will be appreciated that any suitable signaling model may be used to ascertain the presence or location of Mobile Communication Device 103. For exemplary purposes, however, wireless

signaling 303 and/or Mobile Communication Device location messaging 304 are

discussed. In general, wireless signaling 303 received by Mobile Communication Device

103 is used directly or indirectly to ascertain the presence or location of Mobile

Communication Device 103. Wireless signaling 303 is any wireless signal transmitted

5   using any suitable protocol by or on behalf of a wireless network for the purpose of

indicating the presence of the wireless network and/or the availability of certain wireless

services within regions served by the wireless network. In one example, wireless

signaling 303 is a general-purpose beacon or other message transmitted by WLAN

wireless access point(s) 122 or WAN access point(s) 124 to indicate the presence of

10   WLAN 102 or WAN 104. In another example, wireless signaling 303 is a special-purpose

beacon or other message transmitted by WLAN wireless access point(s) 122 or WAN

access point(s) 124 to indicate the availability of services associated with Virtual Retail

System 150 hosted by WLAN 102 or WAN 104. If Mobile Communication Device 103

is in a region served by both WLAN 102 and WAN 104 offering services associated with

15   Virtual Retail System 150, it is generally a matter of design choice which network will

host the services. For example, when Bob is in the electronics store, the feature of Bob's

mobile phone that implements Virtual Retail System 150 may be configured (via

consumer profiling 301, for example) to first identify proximate Retail Locations within

WLAN service area 112, and secondarily to identify proximate Retail Locations within

20   WAN service area 114, or vice-versa.

[0054]   In response to wireless signaling 303, Mobile Communication Device 103

transmits location messaging 304 to wireless network access point 122 or 124. Location

messaging 304 is any wireless signal transmitted using any suitable protocol by or on

behalf of Mobile Communication Device 103 for the purpose of indicating the presence

25   and/or location of Mobile Communication Device 103 to a wireless network.

[0055]   In one implementation, wireless signaling 303 is used directly by Mobile

Communication Device 103 to ascertain its location, and mobile communication device

location messaging 304 is used to communicate the location of Mobile Communication

Device 103 to WLAN 102 or WAN 104. In this implementation, Mobile Communication

30   Device 103 is equipped with a location sensor, such as a global positioning system

("GPS") receiver another type of signal receiver, which is configured to use wireless

signaling 303 to ascertain the location of Mobile Communication Device 103. For

example, information such as GPS coordinates, received signal strengths, received signal

times, and signal transmitter identifiers, may be analyzed by Mobile Communication

Device 103 to ascertain its own location. Various now known or later developed techniques for ascertaining location based on information received from a location sensor may be used, such as global positioning system data analysis, triangulation analysis, time-distance-of-arrival analysis, and signal strength analysis.

5   [0056]   In another implementation, Mobile Communication Device 103 discovers wireless signaling 303, responds to wireless signaling 303 via communication device location messaging 304, and the identity and location of Mobile Communication Device 103 is ascertained by WLAN 102 and/or WAN 104 in response to mobile communication device location message 304. If Mobile Communication Device 103 is within WLAN

10 service region 112, WLAN access point 122 may receive location messaging 304 in response to wireless signaling 303, and forward relevant information to Virtual Retail System 150 hosted or proxied by WLAN server 132. If Mobile Communication Device 103 is within WAN service region 114 WAN access point 124, may receive location messaging 304, and forward relevant information to Virtual Retail System 150 hosted or

15 proxied by WAN servers 134 or 135 and/or special-purpose services, such as location management service 170.

[0057]   For example, location manager 262 within WLAN 102 or WAN 104 may receive information from mobile communication device location messaging 304 (such as GPS coordinates, signal strengths, messaging information, signal arrival times, or signal

20 transmitter identifiers from a particular access point or access points) and analyze such information to ascertain the location of Mobile Communication Device 103. Various now known or later developed techniques for ascertaining location based on information received from a location sensor may be used, such as global positioning system data analysis, triangulation analysis, time-distance-of-arrival analysis, and signal strength

25 analysis.

[0058]   It will be appreciated that it may be desirable to locate Mobile Communication Device 103 within various sub-regions of particular service regions. For example, WLAN service region 112 may cover a relatively large physical region such as a store, a mall, an airport, a café, a city block, a movie theatre, a museum, a theme park, or a performance

30 venue, among other regions. The physical region may be sub-divided into a number of physically or logically defined sub-regions corresponding to individual Retail Locations (operated by the same or different merchant entities), such as departments, stores, and areas at which common Commodities or activities are aggregated. In some cases, such sub-regions may be considered to be separate Retail Locations having separate virtual

retail experiences 201 associated therewith. In the context of Bob's exemplary E-commerce transaction, the electronics store may be sub-divided into areas such as product sales areas, food service/sales areas, and Internet access/seating areas.

[0059] Referring again to FIG. 3, the location of Mobile Communication Device 103 may be communicated, via optional messaging 305, back to Mobile Communication Device 103. Optional messaging 305 represents signaling used, as necessary or desired, to communicate the location of Mobile Communication Device 103 back to entities hosting aspects of Virtual Retail System 150.

[0060] Next, Retail Location identification 304 is performed. Retail location identification 304 represents acts associated with identifying particular Retail Locations 105 offering virtual retail experiences 201 that are proximate to the location of Mobile Communication Device 103. Retail location identification may be performed by Mobile Communication Device 103 and/or network nodes associated with WLAN 102 or WAN 104 (such as WLAN server 132 or WAN servers 134 or 135) that host or proxy aspects of Virtual Retail System 150.

[0061] One circumstance under which Mobile Communication Device 103 and particular Retail Locations 105 may be deemed to be in proximity is when Mobile Communication Device 103 and particular Retail Location(s) 105 are within a certain physical distance from each other. In the case of boundaries of WLAN service region 112, boundaries of WLAN service region 112 (or sub-regions thereof) may provide the limits of the physical distance. For example, whenever the location of Mobile Communication Device 103 is ascertained to be within WLAN service region 112 or a sub-region thereof, proximity would be deemed to exist. In the case of WAN service region 114, the location of Mobile Communication Device 103 relative to a predetermined physical Retail Location or sub-region thereof may be determined and evaluated to determine proximity.

[0062] Consumer profiling 301 may be used to establish other circumstances affecting proximity. For example, certain logical relationships between Consumer 101 and physical Retail Locations 105 may be created and stored within consumer profiles 218, and may be used alone, or as filters in conjunction with certain physical distances, to determine when Mobile Communication Device 103 is proximate to a particular Retail Location. In one scenario, a Retail Location is identified based on an affiliation of the Retail Location with a Retail Location previously visited by Consumer 101. For example, the Consumer's interests may have been obtained or inferred from previous activities associated with

Virtual Retail System 150, and merchant entities may have formed affiliations based on such activities. In the example of consumer profiling 301 referred to above, Bob's consumer profile is used to infer that he is interested in kayaking, and the Merchant Entity associated with the sporting goods stores promotes an affiliation with a kayak rental

5   company located in the strip mall adjacent to the electronics store. In this manner, certain virtual retail experiences can "follow" Bob even when he is not near a service region of a WLAN hosted by a sporting goods store.

[0063]   Acts associated with Retail Location identification 304 may be performed automatically, manually, or a combination thereof. In a generally manual implementation,

10   one or more virtual retail experiences 201 are presented via a user interface on Mobile Communication Device 103 as being associated with proximate physical Retail Locations (based on the proximity of Mobile Communication Device 103 to particular Retail Locations within predefined service regions or sub-regions thereof), and Consumer 101 manually selects (via retail location selection indication 307) the desired virtual retail

15   experience. As the Consumer moves, virtual retail experience options may change. In a more automated implementation, consumer profiling 301 may be performed to filter one or more virtual retail experiences 201 presented to Consumer 101 by communication device 103 and/or a network node hosting Virtual Retail System 150. In a fully automated implementation, Consumer 101 does not have real-time participation in retail location

20   identification 304—based on consumer profiling 301, one or more virtual retail experiences 201 are automatically selected and presented to Consumer 101.

[0064]   In the context of Bob's exemplary E-commerce transaction, if Bob is in the electronics store operating the feature on his mobile phone that implements Virtual Retail System 150 in "manual" mode, the mobile phone may alert him (via vibration, ringing, or

25   in another manner, such as via a messaging service such as a text messaging service, a short messaging service, or a voicemail) that the mobile phone has identified the electronics store and one or more Retail Locations therein (such as the product sales area, food service/sales area, or Internet access/seating area) as being proximate to his current location. One or more references to virtual retail experiences 201 associated with the

30   electronics store may appear on Bob's user interface, and Bob may indicate whether he would like to select a particular virtual retail experience. If Bob is operating his mobile phone in "automatic" mode, Bob may or may not be alerted that the mobile phone has identified one or more virtual retail experiences 201 associated with the electronics store.

[0065]   Referring again to FIG. 3, communication session establishment 306 involves arranging for the establishment of wireless communication session 142 or 144 between Mobile Communication Device 103 and a node of WLAN 102 or a node of WAN 104, respectively. For example, location manager 262 and/or commodity transfer manager 208 within Mobile Communication Device 103, WLAN 102, and/or WAN 104 may use network interface(s) 206 to establish wireless communication session 142 or 144. It should be noted that communication session establishment 306 may be deemed to have occurred whenever Mobile Communication Device 103 and a network-hosted Virtual Retail System 150 are able to discover each other. In general, however, communication establishment 306 involves additional steps relating to establishing a level of trust between Mobile Communication Device 103 and WLAN 102 or WAN 104. Establishing such a level of trust is generally desirable because the nature of wireless E-commerce has the potential to broadcast private and/or commercially-valuable information to virtually unknown entities.

[0066]   In one implementation, communication session establishment 306 involves the performance of security-related authentication, authorization, and accounting ("AAA") activities by WLAN 102 and/or WAN 104 (such as by parties providing AAA management service 160) to establish wireless communication session 142 or 144. Authentication is the process of identifying a user. Users may be identified using any now known or later developed information or technique, such as e-mail address, cell phone number, or more complex information or techniques. Authorization is the process of enforcing policies relating to what types of qualities of activities, resources, or services the user is permitted to access. Authentication may also encompass the authorization process. Accounting measures the resources a user accesses during a particular distribution transaction.

[0067]   AAA activities associated with communication session establishment 306 may be similar to those that have been defined and standardized by the Internet Engineering Task Force ("IETF"), although specific types, amounts, and implementation of AAA activities is a matter of design choice. Some examples of security-related AAA activities are key exchanges and "shared secret" solutions.

[0068]   Once wireless communication session 142 or 144 has been established, it is arranged for Mobile Communication Device 103 to receive commodity information 214 via wireless communication session 142 or 144. For example, commodity transfer manager 208 within Mobile Communication Device 103, WLAN 102, and/or WAN 104

may arrange for Mobile Communication Device 103 to receive commodity information
214.   Commodity information 214 is transmitted for the purpose of notifying Consumer
101 of the availability of a Commodity for transfer on behalf of a particular Merchant
Entity via communication session 142 or 144.   Commodity information 214 may be

5   transmitted via any wireless signal using any suitable protocol.

[0069]   Commodity information 214 is generally presented to Consumer 101 via a
particular virtual retail experience 201/user interface 202 associated with a selected
proximate Retail Location 105.   User interfaces 202 associated with particular virtual retail
experiences 201 are represented and/or stored within information repositories 210 at

10   Mobile Communication Device 103 and/or network nodes hosting aspects of Virtual
Retail System 150.   In the case where network node hosting aspects of Virtual Retail
System 150 deliver virtual retail experience 201/user interface(s) 202 to Mobile
Communication Device 103, a mechanism such as HTML-style web pages, XML-based
presentation models, or any other suitable mechanism or technique that allows a user to

15   browse the contents of a particular service may be used.   Consumer profiling 301 may be
used to customize commodity information 214.

[0070]   In the context of Bob's exemplary E-commerce transaction, Bob selected a
virtual retail experience associated with the product sales area of the electronics store.
Bob received information about digital content files available for download on behalf of

20   the electronics store via a customized user interface presented by his mobile phone. First,
Bob was directed to some pre-programmed music content in the form of playlists or
streaming audio. Bob was able to browse a catalog of available content based on
traditional media library metadata (such as artist name, album name, genre, and the like),
and also based on activity-specific classification criteria (such as kayaking, camping,

25   skiing, bicycle riding, and the like). Bob was also directed to other forms of digital media,
such as images and video clips, as well as web pages on various topics.

[0071]   Referring again to FIG. 3, next, via communication session 142 or 144,
Consideration exchange is arranged between Consumer 101 and the particular Merchant
Entity providing the selected virtual retail experience 201 (or another affiliated Merchant

30   Entity). Examples of Consideration from the Consumer include but are not limited to
promises to pay money (directly or indirectly, such as via cash, credit, or any type of
account charge), the Redemption of a Redeemable Article (such as a certificate, points, or
making an identity-based claim), or promises to perform services (such as receiving
advertising). In exchange for his Consideration, the Consumer receives a Commodity.

For example, the Consumer may receive a selected digital Commodity or the transfer of a Commodity associated with the Retail Location (such as a Commodity transferred at the Retail Location, or a coupon for a discount on such a Commodity), or both. Any suitable now known or later developed file transfer protocols or techniques may be used to accomplish distribution of digital Commodities via wireless communication session 142 or 144. In one implementation, consumer profiling 301 may be used to identify secondary communication device 109, and the selected digital Commodity may be distributed to secondary communication device 109. It will be appreciated that third-party content management services, such as content management services 180, may handle aspects of delivering digital Commodities.

[0072] In the context of Bob's E-commerce transaction, the electronics store had tracked Bob's whereabouts using signal strength analysis while Bob was traveling around the store. The Merchant Entity associated with the electronics store decided that whenever Bob spent more than five minutes in a particular area, an inference could be drawn about Bob's interests. It was proposed that Bob's Consideration for downloading certain music could be met by viewing advertising, which was selected based on what was inferred about Bob's interests based on his locations within the store. Bob had earlier requested that all music files downloaded from the electronic store's virtual retail experience be transmitted to his home computer, which had been previously authenticated and authorized for receiving such files. The Merchant Entity associated with the electronics store contracted with a third party music retailer to support music downloads, but billing was through Bob's cellular provider. In addition, since it was the fifth time Bob conducted E-commerce via the electronics store's virtual retail experience, Bob received a coupon for a free latte via the E-commerce transaction. Bob redeemed the latte coupon, and left the electronics store. Bob's cellular service provider followed his location on behalf of the Merchant Entity associated with the sporting goods stores, and as Bob approached the kayak rental store, his mobile phone alerted him to a coupon for a free kayak rental.

[0073] The wireless, location-based E-commerce systems and techniques described herein enable users of Mobile Communication Devices in the vicinity of physical Retail Locations to receive specific opportunities to engage in E-commerce, using their Mobile Communication Devices, with merchants operating the physical Retail Locations. User interfaces associated with particular Retail Locations/merchant entities provide information regarding Commodities available on behalf of the merchant entities, thus

providing the Consumer with "virtual retail experiences" that complement his experiences at or proximate to the physical Retail Locations. Users are presented with abundant, flexible, options for customization and control of discovery and virtual retail experiences. From a network and/or Merchant Entity perspective, affiliations may be formed between

5   various parties desiring to extract value from E-commerce opportunities presented to Consumers using the methods, systems, apparatuses, or articles of manufacture discussed herein. Retail locations may form profitable business relationships with third parties, and Consumer relationships may be managed by one Merchant Entity but leveraged by many affiliated merchant entities.

10   **[0074]** With continued reference to FIGs. 1-3, FIG. 4 is a block diagram of an exemplary configuration of an operating environment 400 in which all or part of Virtual Retail System 150 and/or the methods shown and discussed in connection with FIG. 3 may be implemented or used. Operating environment 400 is generally indicative of a wide variety of general-purpose or special-purpose computing environments, and is not

15   intended to suggest any limitation as to the scope of use or functionality of the system(s) and methods described herein. For example, operating environment 400 may be a Mobile Communication Device such as a portable digital media player, a personal digital assistant, a vehicle-mounted device, or a mobile phone, or any other type of mobile device now known or later developed. Operating environment 400 may also be any type of

20   computer, such as a personal computer, a workstation, a server, a portable device, a wearable computer, a laptop, a tablet, or any other type of computer, or any aspect thereof. Such a computer may function as a Mobile Communication Device, or may be part of a distributing computing network such as WLAN 102 or WAN 104, and may be used to implement or host a web service in whole or in part.

25   **[0075]** As shown, operating environment 400 includes processor 402, computer-readable media 404, and computer-executable instructions 406. One or more internal buses 420, which are widely available elements, may be used to carry data, addresses, control signals and other information within, to, or from operating environment 400 or elements thereof.

30   **[0076]** Processor 402, which may be a real or a virtual processor, controls functions of operating environment 400 by executing computer-executable instructions 406. Processor 402 may execute instructions 406 at the assembly, compiled, or machine-level to perform a particular process.

[0077]   Computer-readable media 404 represent any number and combination of local or remote devices, in any form, now known or later developed, capable of recording, storing, or transmitting computer-readable data, such as computer-executable instructions 406, user interface(s) 202, commodity information 214, Advertisements 216, consumer profiles

5   218, and communication session information 220. In particular, computer-readable media 404 may be, or may include, a semiconductor memory (such as a read only memory ("ROM"), any type of programmable ROM ("PROM"), a random access memory ("RAM"), or a flash memory, for example); a magnetic storage device (such as a floppy disk drive, a hard disk drive, a magnetic drum, a magnetic tape, or a magneto-optical

10   disk); an optical storage device (such as any type of compact disk or digital versatile disk); a bubble memory; a cache memory; a core memory; a holographic memory; a memory stick; a paper tape; a punch card; or any combination thereof.   Computer-readable media 404 may also include transmission media and data associated therewith. Examples of transmission media/data include, but are not limited to, data embodied in any form of

15   wireline or wireless transmission, such as packetized or non-packetized data carried by a modulated carrier signal.

[0078]   Computer-executable instructions 406 represent any signal processing methods or stored instructions. Generally, computer-executable instructions 406 are implemented as software components according to well-known practices for component-based software

20   development, and encoded in computer-readable media (such as computer-readable media 404). Computer programs may be combined or distributed in various ways. Computer-executable instructions 406, however, are not limited to implementation by any specific embodiments of computer programs, and in other instances may be implemented by, or executed in, hardware, software, firmware, or any combination thereof.

25   [0079]   As shown, certain computer-executable instructions 406 implement virtual retail experience functions 401, which implement aspects of user interface(s) 202 (shown in FIG. 2); certain computer-executable instructions 406 implement network interface functions 426, which implement aspects of network interface(s) 206; certain computer-executable instructions 406 implement location management functions 422, which

30   implement aspects of location manager 262; and certain computer-executable instructions 406 implement commodity transfer management functions 428, which implement aspects of commodity transfer manager 208.

[0080]   Input interface(s) 416 are physical or logical elements that facilitate receipt of input to operating environment 400. Input may be received using any type of now known

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or later-developed physical or logical elements, such as user interfaces, remote controls, displays, mice, pens, styluses, trackballs, keyboards, microphones, scanning devices, and all types of devices that are used input data.

[0081] Output interface(s) 418 are physical or logical elements that facilitate
5   provisioning of output from operating environment 400. Output may be provided using any type of now known or later-developed physical or logical elements, such as user interfaces, displays, printers, speakers, disk drives, and the like.

[0082] Network interface(s) 206 (discussed in more detail above, in connection with FIG. 2) are one or more physical or logical elements that enable wireless communication
10 by operating environment 400 via one or more protocols or techniques.

[0083] Specialized hardware 430 represents any hardware or firmware that implements functions of operating environment 400. Examples of specialized hardware 430 include encoder/decoders ("CODECs"), application-specific integrated circuits, and the like.

[0084] It will be appreciated that particular configurations of operating environment 400
15 or Virtual Retail System 150 may include fewer, more, or different components or functions than those described. In addition, functional components of operating environment 400 or System 200 may be implemented by one or more devices, which are co-located or remotely located, in a variety of ways.

[0085] Various aspects of wireless, location-based, E-commerce transactions have been
20 described. Although the subject matter herein has been described in language specific to structural features and/or methodological acts, it is also to be understood that the subject matter defined in the claims is not necessarily limited to the specific features or acts described above. Rather, the specific features and acts described above are disclosed as example forms of implementing the claims.

25 [0086] It will further be understood that when one element is indicated as being responsive to another element, the elements may be directly or indirectly coupled. Connections depicted herein may be logical or physical in practice to achieve a coupling or communicative interface between elements. Connections may be implemented, among other ways, as inter-process communications among software processes, or inter-machine
30 communications among networked computers.

[0087] The word "exemplary" is used herein to mean serving as an example, instance, or illustration. Any implementation or aspect thereof described herein as "exemplary" is not necessarily to be constructed as preferred or advantageous over other implementations or aspects thereof.

[0088]   As it is understood that embodiments other than the specific embodiments described above may be devised without departing from the spirit and scope of the appended claims, it is intended that the scope of the subject matter herein will be governed by the following claims.

CLAIMS

1.   An e-commerce method, comprising:

identifying (304) a retail location (105) proximate to a location of a mobile communication device (103) operated by a consumer (101);

based on the identified retail location (105), arranging for establishment (306) of a wireless communication session (142/144) between the mobile communication device (103) and a wireless network node (122/132/124/134/135);

via the wireless communication session (142/144), arranging for the consumer (101) to receive information (214) regarding a commodity that is available for transfer on behalf of a merchant entity (107); and

arranging for an exchange of consideration (310) between the consumer (101) and the merchant entity (107) via the wireless communication session (142/144), the consideration from the consumer (101) in exchange for the commodity.

2.   The method according to claim 1, further comprising:

via the wireless communication session (142/144), arranging for the communication device (103) to present a user interface (202/201) associated with the retail location (105),

wherein the step of arranging for the consumer (101) to receive information (214) regarding a commodity comprises arranging for the consumer (101) to receive information regarding the commodity via the user interface (202/201).

3.   The method according to claim 1,

wherein the consideration from the consumer is selected from the group consisting of a promise to pay money, a promise to receive advertising via the wireless communication session, and redemption of a redeemable article.

4.   The method according to claim 1, wherein the commodity is selected from the group consisting of: a commodity at the premises (111), a discount on a commodity at the premises, a digital media file, streaming digital media content, a service provided to the consumer via the wireless communication session, a license, and a redeemable article.

5.   The method according to claim 1, further comprising:

ascertaining a location of the mobile communication device (103) within a predefined service region (112) of a wireless local area network (102) operated on behalf of the merchant entity (107),

wherein the retail location (105) is within the predefined service region (112), and wherein the step of establishing the wireless communication session (142/144) comprises

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establishing the wireless communication session between the mobile communication device (103) and a node (122/132) of the wireless local area network (102) operated on behalf of the merchant entity (107).

6.   The method according to claim 5, wherein the retail location (105) is identified from among a plurality of retail locations within the predefined service region.

7.   The method according to claim 5, wherein at least some of the plurality of retail locations are operated by different merchant entities.

8.   The method according to claim 5, wherein the predefined service region (112) comprises one of: a store having a plurality of departments comprising the plurality of retail locations; a mall having a plurality of stores comprising the plurality of retail locations; a theme park having a plurality of themed regions comprising the plurality of retail locations; and a public attraction having a plurality of geographical areas comprising the plurality of retail locations.

9.   The method according to claim 1, further comprising:

        ascertaining a location of the mobile communication device (103) using a wide-area network (104),

        wherein the step of establishing the wireless communication session (142/144) comprises establishing the wireless communication session (144) between the mobile communication device (103) and a node (124/134/135) of the wide-area network (104).

10.   The method according to claim 1, further comprising:

        establishing a profile (218) associated with the consumer (101);

        via the wireless communication session (142/144), collecting information regarding a behavior of the consumer; and

        based on the collected information, updating the profile.

11.   The method according to claim 10, wherein the collected information is selected from the group consisting of: information input by the consumer via the communication device; information provided by the consumer to the merchant entity; information regarding location of the consumer with respect to the retail location; consideration exchanged by the consumer; and communication device-collected information.

12.   The method according to claim 10, wherein the step of arranging for the mobile communication device (103) to receive information (214) regarding a commodity comprises using the profile (218) to customize the information associated with the commodity.

13.   The method according to claim 10, wherein the step of identifying a retail location
(105) proximate to the location of the mobile communication device (103) comprises
using the profile (218) to identify a retail location proximate to the location of the mobile
communication device.

5   14.   The method according to claim 13, wherein the profile (218) is used to identify the
retail location (105) based on an affiliation of the identified retail location with a retail
location previously visited by the consumer.

15.   A computer-readable medium (404) encoded with computer-executable
instructions (406) for performing the steps recited in claim 1.

10   16.   An e-commerce system (150), comprising:

a location manager (262) configured to determine if a mobile communication
device (103) operable by a consumer (101) is proximate to a retail location (105);

a network interface (206) responsive to the location manager, the network interface
configured to use a predetermined communication protocol to establish a wireless

15   communication session (142/144) between the mobile communication device and a
wireless network node (122/132/124/134/135); and

a commodity transfer manager (208) responsive to the location manager and the
network interface, the commodity transfer manager configured to

arrange for the consumer to receive, via the wireless communication

20   session, information (214) regarding a commodity that is available for transfer on
behalf of a merchant entity (107), and

arrange for an exchange of consideration between the consumer and the
merchant entity via the wireless communication session, the consideration from the
consumer in exchange for the commodity.

25   17.   The system according to claim 16, wherein the system comprises a client-side
operating environment (400).

18.   The system according to claim 17, wherein the client-side operating environment
(400) is implemented within one of a mobile phone, a personal digital assistant, a portable
digital media player, a computer, and a vehicle-mounted device .

30   19.   The system according to claim 16, wherein the system comprises a server-side
operating environment (400).

20.   The system according to claim 19, wherein the server-side operating environment
(400) is implemented by one of a point-of-presence server operated on behalf of the

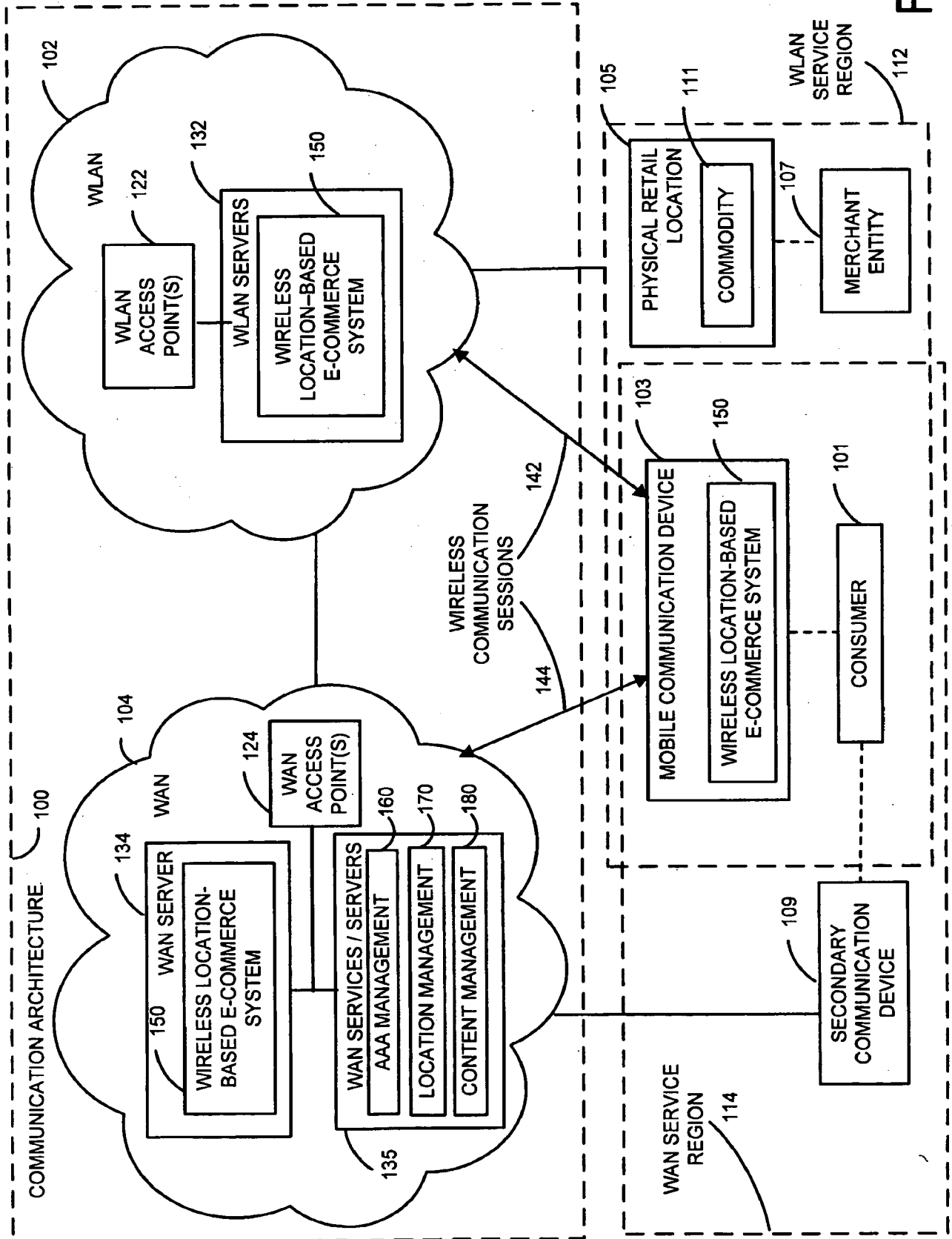merchant entity within a wireless local area network at the retail location, and a server within a wide-area network.
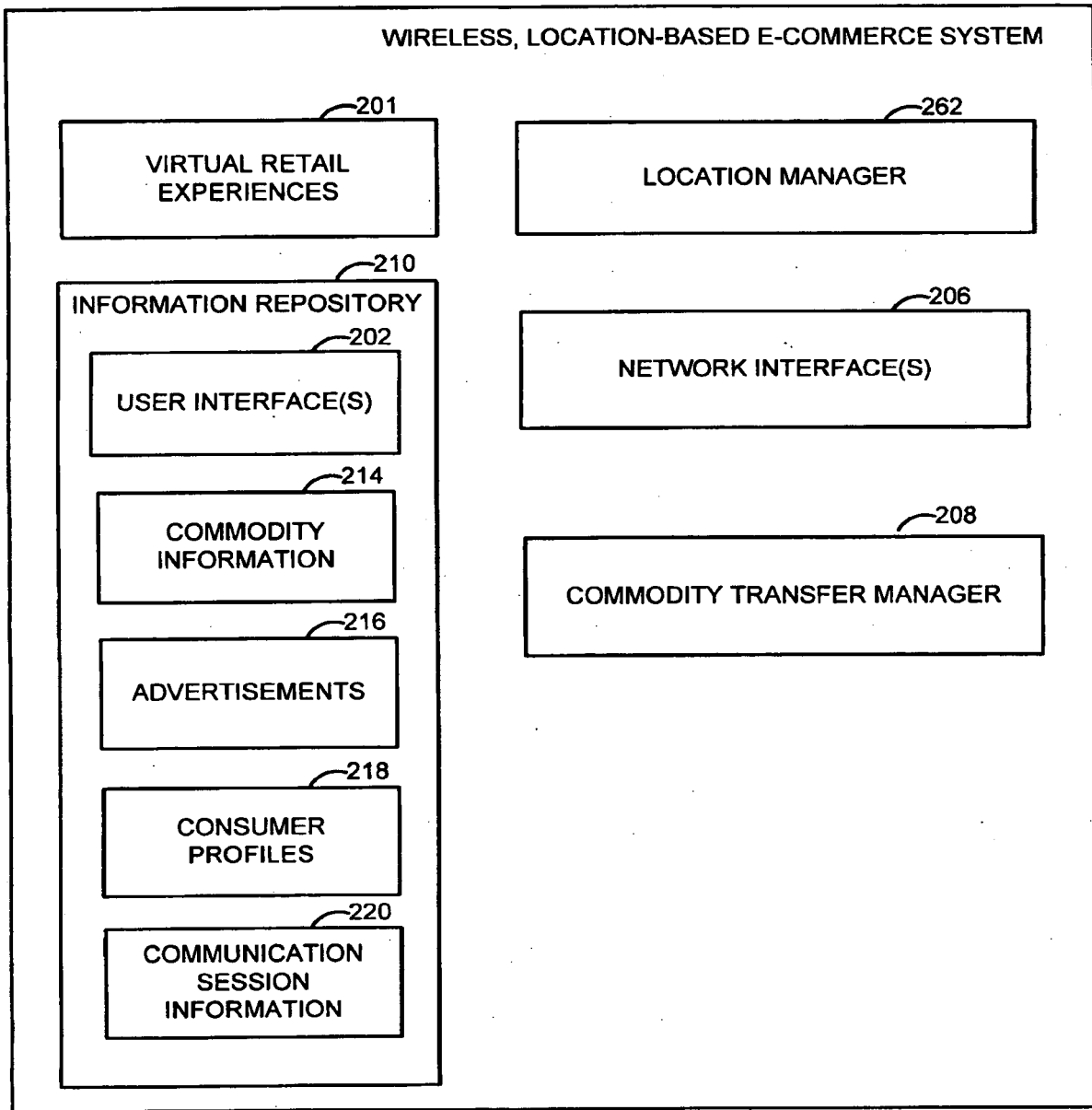
FIG. 1

WIRELESS, LOCATION-BASED E-COMMERCE SYSTEM

201
VIRTUAL RETAIL
EXPERIENCES

262
LOCATION MANAGER

210
INFORMATION REPOSITORY

202
USER INTERFACE(S)

214
COMMODITY
INFORMATION

216
ADVERTISEMENTS

218
CONSUMER
PROFILES

220
COMMUNICATION
SESSION
INFORMATION

206
NETWORK INTERFACE(S)

208
COMMODITY TRANSFER MANAGER

150

FIG. 2

FIG. 3

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OPERATING ENVIRONMENT

430
SPECIALIZED HARDWARE

416
INPUT INTERFACE(S)

418
OUTPUT INTERFACE(S)

BUS
420

402
PROCESSOR

206
NETWORK INTERFACE(S)

404
COMPUTER READABLE MEDIA

406
INSTRUCTIONS

401
VIRTUAL RETAIL
EXPERIENCE FUNCTIONS

422
LOCATON MANAGEMENT
FUNCTIONS

426
NETWORK INTERFACE
FUNCTIONS

428
COMMODITY TRANSFER
MANAGEMENT FUNCTIONS

202
USER INTERFACE(S)

214
COMMODITY
INFORMATION

216
ADVERTISEMENTS

218
CONSUMER PROFILE(S)

220
COMMUNICATION SESSION
INFORMATION

400
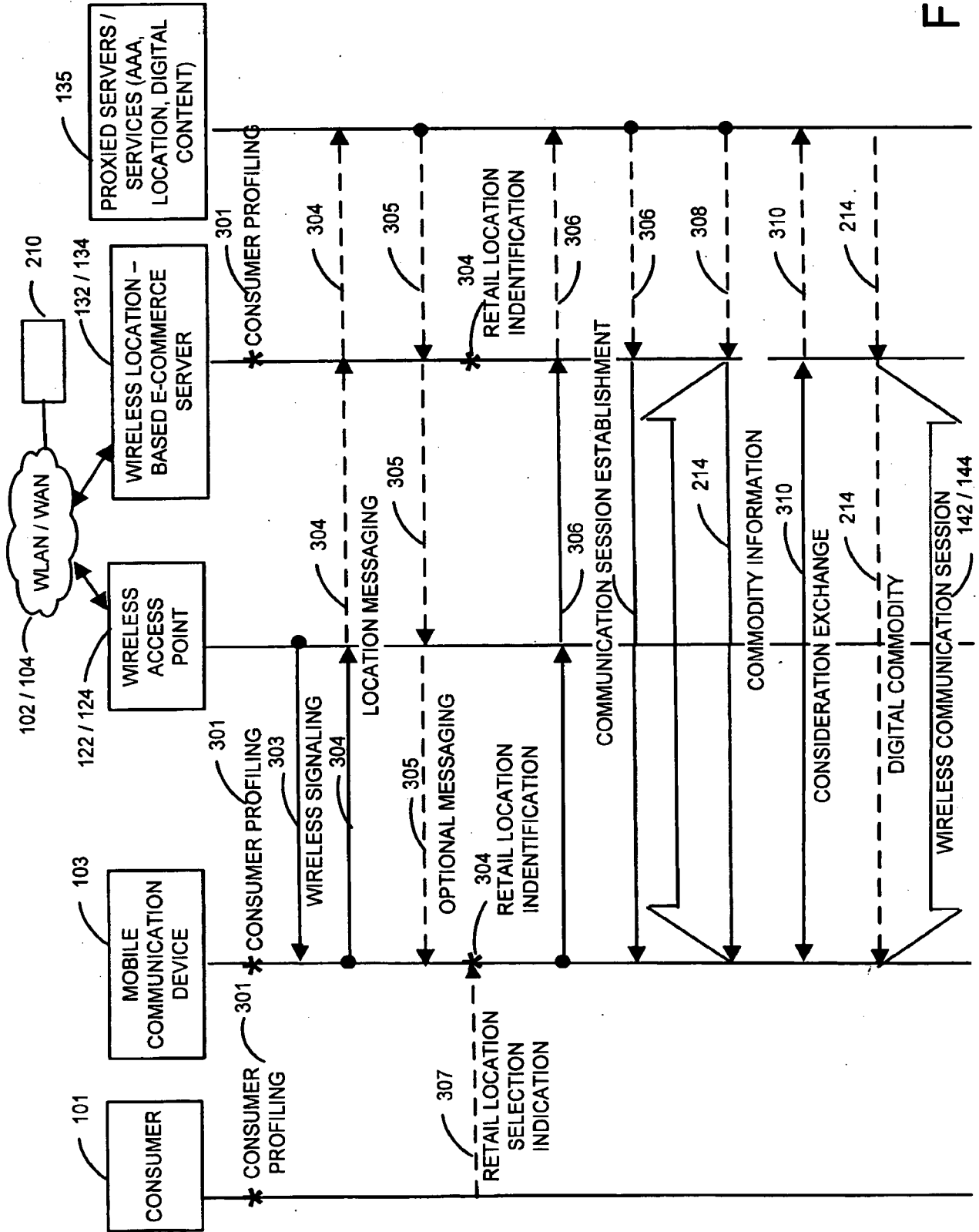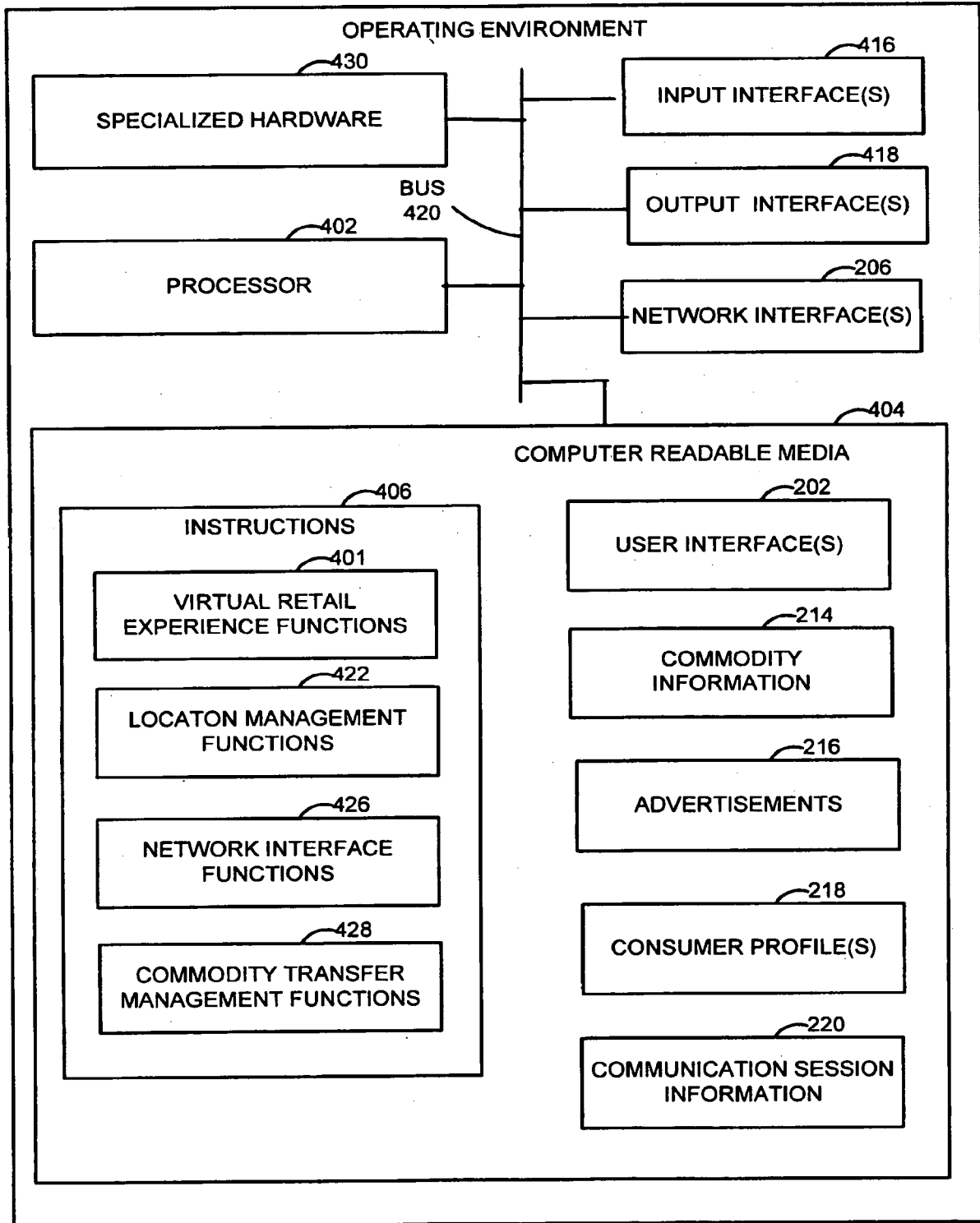
FIG. 4

A. CLASSIFICATION OF SUBJECT MATTER

G06Q 30/00(2006.01)i, H04Q 7/24(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 8 G06Q 30/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models since 1975.
Japanese utility models and applications for utility models since 1975.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
e-KIPASS "commerce, retail, location, proximate, mobile, communication, device"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0061303 A1 (Michael Wayne Brown, et al) 27 MARCH 2003 See abstract; figures 1, 4-7, 17-19; paragraphs [0013]-[0035]; claims	1 - 20
Y	KR 1020010070471 A (International Business Machines Corporation) 25 JULY 2001 See abstract; figures 1-6; claim 12	1 - 20
A	US 6,965,868 B1 (Michael David Bednarek) 15 NOVEMBER 2005 See abstract; figure 1; claims	1 - 20
A	US 2002/0065739 A1 (Andrew C. Florance, et al) 30 MAY 2002 See abstract; figures 1-2; paragraphs [0036]-[0062]; claims	1 - 20

☐ Further documents are listed in the continuation of Box C.　　☒ See patent family annex.

*　　Special categories of cited documents: "A"　document defining the general state of the art which is not considered to be of particular relevance "E"　earlier application or patent but published on or after the international filing date "L"　document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified) "O"　document referring to an oral disclosure, use, exhibition or other means "P"　document published prior to the international filing date but later than the priority date claimed	"T"　later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X"　document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y"　document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art "&"　document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
03 DECEMBER 2007 (03.12.2007)	**03 DECEMBER 2007 (03.12.2007)**
Name and mailing address of the ISA/KR 　　Korean Intellectual Property Office 　　920 Dunsan-dong, Seo-gu, Daejeon 302-701, 　　Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer 　　MUN, Hyeong Sub Telephone No.　82-42-481-8121

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