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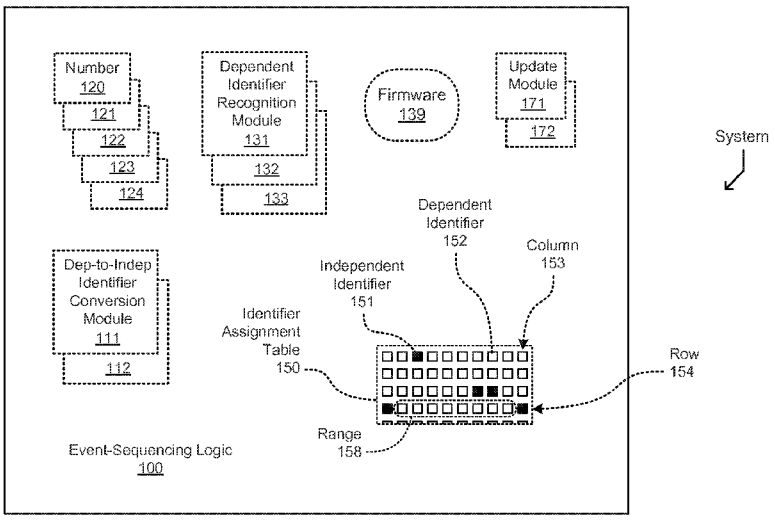
[Continued on next page]

(54) Title: MOBILE DEVICE SHARING FACILITATION METHODS AND SYSTEMS

FIG. 1



(57) Abstract: Structures and protocols are presented for signaling a status or decision concerning a wireless service or device within a region to a network participant or other communication device (smartphone or vehicle, e.g.).

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Mobile Device Sharing Facilitation Methods and Systems

[0001] All subject matter of the Priority Applications and the Related Applications and of any and all parent, grandparent, great-grandparent, etc. applications of the Priority Applications and the Related Applications, including any priority claims, is incorporated herein by reference to the extent such subject matter is not inconsistent herewith.

TECHNICAL FIELD

[0002] This disclosure relates to facilitating connectivity in wireless communications.

BRIEF DESCRIPTION OF THE FIGURES

[0003] For a more complete understanding of embodiments, reference now is made to the following descriptions taken in connection with the accompanying drawings. The use of the same symbols in different drawings typically indicates similar or identical items, unless context dictates otherwise. The illustrative embodiments described in the detailed description, drawings, and claims are not meant to be limiting. Other embodiments may be utilized, and other changes may be made, without departing from the spirit or scope of the subject matter presented here.

[0004] **FIG. 1** depicts an exemplary environment in which one or more technologies may be implemented, including event-sequencing logic (a schematic depiction of an electronic or electromechanical apparatus implemented as circuitry, e.g.).

[0005] **FIG. 2** depicts an exemplary environment in which one or more technologies may be implemented, including event-sequencing logic.

[0006] **FIG. 3** comprises a 15-sheet depiction of an environment in which several entities may interact via a network and in which sub-parts are labeled as **FIGS. 3-A** through **3-O.**

[0007] **FIG. 3-A** depicts a 3x5 grid of view identifiers of the 15 respective sub-parts of **FIG. 3.**

[0008] **FIG. 3-B** comprises a portion of **FIG. 3** that depicts a device reconfiguration service provider.

[0009] **FIG. 3-C** comprises a portion of **FIG. 3** that depicts in integrated circuit chip and a device component manufacturer.

[0010] **FIG. 3-D** comprises a portion of **FIG. 3** that depicts a first wireless communication service provider.

[0011] **FIG. 3-E** comprises a portion of **FIG. 3** that depicts a party using a first mobile device after it is reconfigured (to facilitate device sharing via one or more dependent identifiers, e.g.).

[0012] **FIG. 3-F** comprises a portion of **FIG. 3** that depicts another party using the first mobile device before it is reconfigured.

[0013] **FIG. 3-G** comprises a portion of **FIG. 3** that depicts a telephone switch.

[0014] **FIG. 3-H** comprises a portion of **FIG. 3** that depicts a first internet service provider (ISP).

[0015] **FIG. 3-I** comprises a portion of **FIG. 3** that depicts first resources of a second wireless communication service provider.

[0016] **FIG. 3-J** comprises a portion of **FIG. 3** that depicts a second internet service provider.

[0017] **FIG. 3-K** comprises a portion of **FIG. 3** that depicts a support service provider and a device manufacturer.

[0018] **FIG. 3-L** comprises a portion of **FIG. 3** that depicts second resources of the second wireless communication service provider.

[0019] **FIG. 3-M** comprises a portion of **FIG. 3** that depicts a wireless local area network (WLAN) zone and parties who can use a second mobile device.

[0020] **FIG. 3-N** comprises a portion of **FIG. 3** that depicts another party who can use the second mobile device.

[0021] **FIG. 3-O** comprises a portion of **FIG. 3** that depicts a network maintenance service provider that can facilitate cellular service to the second mobile device.

[0022] **FIG. 4** depicts an exemplary environment in which one or more technologies

may be implemented, including a schematic depiction of a device.

[0023] FIG. 5 depicts an exemplary environment in which one or more technologies may be implemented, including a schematic depiction of event-sequencing logic (a schematic depiction of an electronic or electromechanical apparatus implemented as circuitry, e.g.).

[0024] FIG. 6 depicts an exemplary environment in which one or more technologies may be implemented, including a schematic depiction of a data handling medium.

[0025] FIG. 7 depicts an exemplary environment in which one or more technologies may be implemented, including a schematic depiction of event-sequencing logic.

[0026] FIG. 8 depicts an exemplary environment in which one or more technologies may be implemented, including a schematic depiction of event-sequencing logic (a schematic depiction of an electronic or electromechanical apparatus implemented as circuitry, e.g.).

[0027] FIG. 9 depicts an exemplary environment in which one or more technologies may be implemented, including a schematic depiction of event-sequencing logic.

[0028] FIG. 10 depicts an exemplary environment in which one or more technologies may be implemented, including a schematic depiction of event-sequencing logic (a schematic depiction of an electronic or electromechanical apparatus implemented as circuitry, e.g.).

DETAILED DESCRIPTION

[0029] In the following detailed description, reference is made to the accompanying drawings, which form a part hereof. In the drawings, similar symbols typically identify similar components, unless context dictates otherwise. The illustrative embodiments described in the detailed description, drawings, and claims are not meant to be limiting. Other embodiments may be utilized, and other changes may be made, without departing from the spirit or scope of the subject matter presented here.

[0030] There are circumstances in which a person who uses mobile communication or computing devices (smartphones or tablet computers, e.g.) might benefit from sharing the devices for a period (of an hour or more, e.g.) with one or more other people. Likewise there are circumstances in which such devices may be used more

effectively by operating them as virtual mobile devices (as guests on a physical device or in a cloud service implementation, e.g.) or by using virtual identifiers (phone numbers, e.g.) that effectively correspond to a virtual party (of one or more human beings, e.g.) for an extended period (of up to a few years, e.g.). Although services like call forwarding or Google Voice provide device users with various capabilities in conjunction with mobile phones, such capabilities do not adequately take into account the unique characteristics of mobile devices or the needs and preferences of users with only a limited access to them. Various device configurations and protocols described herein address these shortcomings. In the interest of concision and according to standard usage in communication technologies, such features are set forth in natural language expressions. It will be understood by those skilled in the art that such expressions (functions or acts recited in English, e.g.) adequately describe structures identified below so that no undue experimentation will be required for their implementation.

[0031] In light of teachings herein numerous existing techniques may be applied for configuring special purpose circuitry or other structures effective for obtaining user preferences as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8447352 ("Method and apparatus for communicating via virtual office telephone extensions"); U.S. Pat. No. 8316394 ("Interactive media guidance application with intelligent navigation and display features"); U.S. Pat. No. 8311513 ("Automated mobile system"); U.S. Pat. No. 8301564 ("Interacting with user at ATM based on user preferences"); U.S. Pat. No. 8280913 ("Systems and methods for management of contact information"); U.S. Pat. No. 7925250 ("Reuse of a mobile device application in a desktop environment"); U.S. Pat. No. 7743334 ("Dynamically configuring a web page"); U.S. Pat. No. 7664720 ("Method and product of manufacture for the recommendation of optimizers in a graphical user interface for mathematical solvers"); U.S. Pat. No. 7650319 ("Adaptive pattern recognition based controller apparatus and method and human-factored interface therefore"); U.S. Pat. No. 7593812 ("Technique for effective navigation based on user preferences"); U.S. Pat. No. 7567305 ("Method for selecting preference channel and digital TV using the same"); U.S. Pat. No. 7522992 ("Technique for effective navigation based on user preferences"); U.S. Pat. No. 7516092 ("System and method for performing purchase transactions utilizing a broadcast-based device"); U.S.

Pat. No. 7344063 ("Networked disposal and sample provisioning apparatus"); U.S. Pat. No. 7305079 ("Method and apparatus for communicating with one of plural devices associated with a single telephone number"); U.S. Pat. No. 7260203 ("Method and apparatus for routing calls based on identification of the calling party or calling line"); U.S. Pat. No. 7245913 ("Handset mode selection based on user preferences").

[0032] In light of teachings herein numerous existing techniques may be applied for configuring special purpose circuitry or other structures effective for establishing or characterizing a communication channel as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8234523 ("Automatic determination of success of using a computerized decision support system"); U.S. Pat. No. 8233471 ("Wireless network system and method for providing same"); U.S. Pat. No. 8145975 ("Universal packet loss recovery system for delivery of real-time streaming multimedia content over packet-switched networks"); U.S. Pat. No. 8054856 ("Method for synchronizing voice traffic with minimum latency in a communications network"); U.S. Pat. No. 7835314 ("Physical layer interface system and method for a wireless communication system"); and U.S. Pat. No. 7787896 ("Dispatch service architecture framework").

[0033] In light of teachings herein, moreover, numerous existing techniques may be applied for configuring special-purpose circuitry or other structures effective for implementing various wireless linkages **496** as depicted herein as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8311509 ("Detection, communication and control in multimode cellular, TDMA, GSM, spread spectrum, CDMA, OFDM WiLAN and WiFi systems"); U.S. Pat. No. 8259822 ("Polar and quadrature modulated cellular, WiFi, WiLAN, satellite, mobile, communication and position finder systems"); U.S. Pat. No. 8249256 ("Method for providing fast secure handoff in a wireless mesh network"); U.S. Pat. No. 8248968 ("Method and apparatus for providing mobile inter-mesh communication points in a multi-level wireless mesh network"); U.S. Pat. No. 8223694 ("Enhanced information services using devices in short-range wireless networks"); U.S. Pat. No. 8219312 ("Determining speed parameters in a geographic area"); U.S. Pat. No. 8200243 ("Mobile television (TV), internet, cellular systems and Wi-Fi networks"); U.S. Pat. No. 8184656 ("Control channel negotiated intermittent wireless communication"); U.S. Pat. No. 8169311 ("Wireless transmission

system for vehicular component control and monitoring"); U.S. Pat. No. 8165091 ("Efficient handover of media communications in heterogeneous IP networks using LAN profiles and network handover rules"); U.S. Pat. No. 8125896 ("Individualizing a connectivity-indicative mapping"); U.S. Pat. No. 8111622 ("Signal routing dependent on a node speed change prediction"); U.S. Pat. No. 8098753 ("Infrared, touch screen, W-CDMA, GSM, GPS camera phone"); U.S. Pat. No. 7646712 ("Using a signal route dependent on a node speed change prediction"); U.S. Pat. App. No. 13/317,988 (Context-sensitive query enrichment"); U.S. Pat. App. No. 11/252,206 ("Signal routing dependent on a loading indicator of a mobile node"); U.S. Pat. App. No. 11/221,421 ("Heading dependent routing"); and U.S. Pat. App. No. 11/221,396 ("Heading dependent routing method and network subsystem").

[0034] With reference now to **FIG. 1,** a system is shown in schematic form comprising event-sequencing logic **100** (transistor-based circuitry including electrical node sets each having a voltage configuration that manifests an informational structure, e.g.). Event-sequencing logic **100** includes one or more instances of dependent-to-independent conversion modules **111, 112;** of mobile numbers **120, 121, 122, 123, 124;** of dependent identifier recognition modules **131, 132, 133;** of update modules **171, 172;** of identifier assignment tables **150;** or of other such entities. In some variants, as described below, some or all of these may (optionally) reside in firmware **139.** Alternatively or additionally, each such instance of identifier assignment tables **150** may include several instances of columns **153,** rows **154,** ranges **158,** or other groupings each configured to map or otherwise associate zero or more dependent identifiers **152** (each depicted as a white square and representing a user or party identifier, e.g.) with each independent identifier **151** (depicted as a black square and representing a device identifier, e.g.). Various configurations of dependent identifier recognition module (DIRM) **131-133** permit dependent identifiers **152** to be identified as such by an intrinsic property of the identifier. DIRM **131** determines that an identifier (mobile number, e.g.) is independent only if its last three digits form an integer evenly divisible by X, in which $1<X<10$ (with $X=2$, deeming an identifier dependent if it is odd and independent if it is even, e.g.). DIRM **132** determines that an identifier is independent if it contains a digit equal to Y and otherwise determines that it is dependent (with Y being any digit 0 to 9).

In some contexts, an intrinsic recognition protocol can comprise invoking two or more such modules, as further described below.

[0035] With reference now to **FIG. 2,** a system is shown in schematic form comprising event-sequencing logic **200** (transistor-based circuitry including electrical node sets each having a voltage configuration that manifests an informational structure, e.g.). Event-sequencing logic **200** includes one or more instances of groups **201, 202, 203, 204;** of communication recipient identifiers **205;** of parameters **211, 212, 213, 214;** of alphanumeric attributes **221, 222, 223, 224, 225, 226, 227;** of lists **251, 252;** of protocols **267, 267;** or of determinants **271, 272, 273** (a prerequisite **261** or exception **262,** e.g.) as described below.

[0036] With reference now to **FIG. 3,** there is shown a high-level environment diagram depicting a system **300** in or across which one or more instances of event-sequencing logic **100, 200** or components thereof may be instantiated (in subsystems or mobile devices described below, e.g.) and in which one or more technologies may be implemented. In accordance with 37 CFR 1.84(h)(2), **FIG. 3** shows "a view of a large machine or device in its entirety ... broken into partial views... extended over several sheets" labeled **Fig. 3-A** through **Fig. 3-O** (Sheets 3-17). The "views on two or more sheets form, in effect, a single complete view, [and] the views on the several sheets ... [are] so arranged that the complete figure can be assembled" from "partial views drawn on separate sheets … linked edge to edge," in that (i) a "smaller scale view" is "included showing the whole formed by the partial views and indicating the positions of the parts shown," see 37 CFR 1.84(h)(2), and (ii) the partial-view **Figs. 3-A to 3-O** are ordered alphabetically, by increasing column from left to right, as shown here:

FIG. 3-A	FIG. 3-B	FIG. 3-C
FIG. 3-D	FIG. 3-E	FIG. 3-F
FIG. 3-G	FIG. 3-H	FIG. 3-I
FIG. 3-J	FIG. 3-K	FIG. 3-L
FIG. 3-M	FIG. 3-N	FIG. 3-O

Because **FIG. 3** is a high-level environment diagram, some elements of system **300** are expressed through the function they carry out. In such circumstances, these elements should be considered to include any combination of one or more program, microprocessor configuration, state machine, transistor-based event sequencing structure, firmware, field-programmable gate array ("FPGA") configuration, application programming interface ("API"), function, class, data structure, dynamically loaded library ("DLL"), database (e.g., SQL database), or other such special-purpose modules implemented in a structure or method eligible for patent protection under 35 U.S.C. §101.

[0037] With reference now to **FIG. 3-B**, there is shown a device reconfiguration service provider **388** and a network maintenance service provider **389.**

[0038] With reference now to **FIG. 3-C**, there is shown an integrated circuit (IC) chip **340** provided by a device component manufacturer **355.** IC chip **340** includes pads **335** distributed about a periphery of a dielectric substrate **307** upon which many transistors **351, 352** are configured to form several functional blocks (e.g. memories **336, 337** and special-purpose modules **338, 339** such as those described below). Such integrated circuitry **330** primarily comprises transistors **351, 352** operably coupled by electrically conductive signal-bearing conduits **308.** Informational data identified herein may easily be represented digitally as a voltage configuration on (a "set" of one or more) electrical nodes **341, 342, 343, 344** (voltage levels **331, 332, 333, 334** on respective conduits or pads **335,** e.g.) of an event-sequencing structure (an instance of transistor-based circuitry on integrated circuit **330,** e.g.) without any undue experimentation.

[0039] With reference now to **FIG. 3-D**, there is shown a wireless communication service provider **360** including one or more instances mobile switching center (MSC) resources. Such resources include one or more instances of equipment identity registers (EIR) **361;** home location registers (HLR) **363;** of visitor location registers (VLR) **364;** of virtual device identifier recognition modules (VDIDRM) **365;** of channel establishment subsystems (CES) **368;** or of channel adaptation subsystems (CAS) **369.**

[0040] With reference now to **FIG. 3-E**, there is shown a base transceiver station (BTS) **359** of network maintenance service provider **389** configured to transmit a wireless signal **397** to a party **302** ("Roger") operating a mobile communication device **322.** As

shown, party **302** is in a cell-only zone **315** bounded by zone boundary **310.** Also BTS **359** is operably coupled (via linkages **496** represented as dashed lines comprising signal paths through fiberoptic or free space or other passive transmission media and optionally through one or more active devices, e.g.) with wireless communication service provider **360** and device **322** as shown.

[0041] With reference now to **FIG. 3-F**, there is shown a mobile device **321** having a camera **347** and display **345** held by another party **301** (prior to being reconfigured by device reconfiguration service provider **388,** e.g.). While in wireless local area network (WLAN) zone **316,** moreover, device **321** is able to communicate via more than one type of wireless linkage **496.** While in cell **314,** for example, device **321** may communicate via BTS **359.** While in WLAN zone **316,** device **321** may likewise communicate via an access point **356** operated by hotspot provider **386.** Within an overlap of cell **314** and WLAN zone **316,** moreover, device **321** may communicate via either or both and may implement a handover in either direction.

[0042] With reference now to **FIG. 3-G**, there is shown a representation of a network **390** comprising one or more instances of switch **395.** Network **390** is operably coupled with wireless communication service providers **360, 370** via one or more linkages **496** as shown.

[0043] With reference now to **FIG. 3-H**, there is shown a representation of several additional resources of network **390** comprising one or more instances of public switched packet data network (PSPDN) subsystems **396;** of public switched telephone network (PSTN) subsystems **398;** or of communications satellites **399. FIG. 3-H** also shows an instance of a switch **357** operated by an internet service provider **387.**

[0044] With reference now to **FIG. 3-I**, there is shown a representation of another wireless communication service provider **460** (having a contractual and operational relationship with provider **360** of FIG. 3-D, e.g.) including one or more instances mobile switching center (MSC) resources. Such resources include one or more instances of equipment identity registers (EIR) **461.**

[0045] **FIG. 3-J** also shows an instance of a switch **457** maintained by an internet service provider **487** and operably coupled via communication linkages **496** (each

comprising one or more fiberoptic conduits or free space media, e.g.) with network **390** and hotspot provider **486** as shown.

[0046] **FIG. 3-K** shows a support service provider **425** operating one or more instances of virtual-to-real conversion modules **426** or authentication centers (AUC) **427** residing on one or more servers **428** (to which device manufacturer **485** may communicate attributes, apps, or other digital components as described herein, e.g.).

[0047] With reference now to **FIG. 3-L**, there is shown a representation of one or more additional resources of provider **460:** one or more instances of home location registers (HLR) **463;** of visitor location registers (VLR) **464;** of virtual device identifier recognition modules (VDIDRM) **465;** of channel establishment subsystems (CES) **468;** or of channel adaptation subsystems (CAS) **469.**

[0048] With reference now to **FIG. 3-M**, there is shown an access point **456** operated by a hotspot provider **486** (a retailer, e.g.) providing wireless service (Wi-Fi, e.g.) to a WLAN zone **416** within cell **414.** Hotspot provider **486** may be operably coupled with switch **457** and wirelessly operably coupled with a device that has entered WLAN zone **416** (by crossing zone boundary **410** from cell-only zone **415,** e.g.) via linkages **496** as shown.

[0049] With reference now to **FIG. 3-N**, there is shown a mobile communication device **440** (smartphone or tablet computer, e.g.) having firmware **439** and initially associated with an independent identifier **151** (e.g. a "real" mobile number of "**206-555-2460**"). As described below, device **440** is later configured to be shared among a plurality of parties **401, 402, 403** ("Susan" and "Nancy" and "Carol") by respectively assigning dependent identifiers **152** (e.g. "virtual" mobile numbers of "**206-555-2461**" and "**206-555-2462**" and "**206-555-2463**"). As described below, each such identifier has one or more recognizable intrinsic attributes **221-227** so that a dependent identifier **152** (recognizable as such by a virtual device identifier recognition module **365,** e.g.) need not be listed in a home location register **363** or visitor location register **364.** In lieu of such listings, an identifier (provided in a phone call initiated from device **321,** e.g.) that is "likely enough" to be virtual (about 5% likely or more, e.g.) may cause VDIDR module **365** to initiate an investigation protocol (invoking one or more instances of virtual-to-real conversion modules **426** or authentication centers **427** or similar resources, e.g.) effective

to determine whether a corresponding physical destination (server **428** or device **440**, e.g.) can be found (e.g. before reporting back to device **321** a mere fact that the identifier is "unlisted"). In some contexts, for example, such implementations may be facilitated by firmware **439** and a software configuration of server **428** (both having been provided by device manufacturer **485**, e.g.).

[0050] With reference now to **FIG. 3-O**, there is shown a base transceiver station (BTS) **459** of network service provider **489** configured to transmit a wireless signal **497** to device **440** or to one or more parties **401, 402, 403** as described below.

[0051] With reference now to **FIG. 4**, a system is shown in schematic form a handheld or other device **400** instantiated as one or more mobile devices **321, 440** depicted in FIG. 3. Event-sequencing logic (transistor-based circuitry including electrical node sets each having a voltage configuration that manifests an informational structure, e.g.) therein may include one or more instances of subscriber identity modules **472**, frequency hopping modules **473**, transmit/receive modules **474**, channel management modules **475**, signal processing modules **476**, user interfaces **477**, encoders **478**, or decoders **479**.

[0052] With reference now to **FIG. 5**, a system is shown in schematic form comprising event-sequencing logic **500** (transistor-based circuitry including electrical node sets each having a voltage configuration that manifests an informational structure, e.g.). Event-sequencing logic **500** may include one or more instances of communications **531, 532, 533, 534, 535**; of protocols **541, 542, 543, 544, 545, 546**; of user directories **561, 562**; of digitally encoded sounds **571, 572, 573**; of time periods **575**; of transistor-based processors **580**; or of modules **581, 582, 583, 584**. Each such communication may include, for example, one or more instances of calls **521**, of texts **522**, or of other content **523** comprising a unidirectional communication (a broadcast, e.g.) or bidirectional communication (a teleconference among two or more instances of device **400**, e.g.). One or more instances of event-sequencing logic **500** may be implemented, for example, in network **390** or in device **440**.

[0053] With reference now to **FIG. 6**, a system is shown in schematic form comprising data-handling medium **600** (node sets each having a magnetic or voltage configuration that manifests an informational structure, e.g.). Medium **600** (comprising a

memory or storage medium, e.g.) may include one or more instances of tables **641, 642** that each map one or more rows **660** of response protocols **635** (each comprising a pointer or other operational parameter relating to software executable by one or more processors **580,** e.g.) to two or more context-dependent default response protocols **601, 602, 603, 604, 605** and (optionally) to two or more context-dependent response protocols **611, 612, 613, 614, 615** associated with a single party identifier **610** (in a many-to-one association by virtue of being in the same row **661** or other record, e.g.). Likewise as shown in row **662,** party identifier **620** corresponds to one or more response protocols **621, 622, 623, 624, 625** (e.g. suitable in one or more respective contexts **651, 652, 653, 654, 655**) and party identifier **630** corresponds to one or more response protocols **631, 632, 633, 634, 635** depending upon context as described below. Medium **600** may likewise include one or more instances of digitally expressed periods **661, 662.** Medium **600** may likewise include one or more instances of datastructures **680** (content suitable for routing as a wireless signal **497,** e.g.) that map zero or more account-specific headers **671** (identifying a single party **403,** e.g.) to a network routing tag **672** (e.g. an independent identifier **151** listed in visitor location register **364** or home location register **463,** e.g.) associated with a series of data items **681, 682, 683** (e.g. user data). One or more instances of such media **600** may be implemented, for example, in mobile device **440** or in a server **428** accessible to device **440.**

[0054] With reference now to **FIG. 7,** a system is shown in schematic form comprising event-sequencing logic **700** (transistor-based circuitry including electrical node sets each having a voltage configuration that manifests an informational structure, e.g.). Event-sequencing logic **700** may include one or more instances of modes **701, 702, 703, 704, 705, 706, 707, 708** (arranged in a list **710,** e.g.); of protocols **711, 712, 713, 714, 715, 716, 717, 718;** of registries **721, 722;** of user interfaces **741, 742;** of selection modules **751, 752, 753, 754;** or of recognition modules **771, 772, 773, 774.** For example, such components of event-sequencing logic **700** may each comprise a pointer or other operational parameter providing access to or otherwise triggering a selective execution of software executable by one or more processors **580,** e.g.). One or more instances of event-sequencing logic **700** may be implemented, for example, in a mobile device **322,**

440 configured to receive or responsively participate in one or more communications **531-535** as described below.

[0055] In some contexts, as further described below, one or more such modes may comprise conditional response protocols like those of **FIG. 6.** When an incoming signal (comprising one or more communications **531-535,** e.g.) has a signal source identification tag (a caller identification field defining which of two or more contexts **651-654** will apply, e.g.) and a signal target identification tag (account-specific header **671** defining one or more party identifiers **610, 620, 630** specify a suitable recipient, e.g.) at mobile device **440,** for example, one or more recognition protocols **772** may use both of these tags as co-determinants for selecting among several response protocols **611-613, 631-633.** In some contexts, for example, only some of the contingently-invoked response protocols include an audible component (sound **573,** e.g.).

[0056] With reference now to **FIG. 8,** a system is shown in schematic form comprising event-sequencing logic **800** (transistor-based circuitry including electrical node sets each having a voltage configuration that manifests an informational structure, e.g.). Event-sequencing logic **800** may include one or more instances of messages **821, 822** or other automatic and conditional responses **811, 812, 813;** of values **835** or other features of apps **831, 832, 833;** or of installable device components **861, 862, 863** (a smartcard **851** or downloadable app **852,** e.g.). One or more instances of event-sequencing logic **800** may be implemented, for example, in a mobile device **322, 440** configured to receive or responsively participate in one or more communications **531-535** as described below.

[0057] With reference now to **FIG. 9,** a system is shown in schematic form comprising event-sequencing logic **900** (transistor-based or other integrated circuitry **330** including electrical node sets each having a voltage configuration that manifests an informational structure, e.g.). Event-sequencing logic **900** may include one or more instances of signal processing modules **958** (including one or more instances of an antenna **956** configured to receive a wireless signal **397, 497,** e.g.); of characterization modules **965** (including one or more cameras **961,** microphones **962,** or other sensors **963,** e.g.); or of presentation modules **970** (including one or more speakers **971** or displays **972,** e.g.). One or more instances of event-sequencing logic **900** may be

configured to interact with one or more parties **401, 402** in a vicinity (of effective optical or auditory detection, e.g.) of device **440.**

[0058] With reference now to **FIG. 10,** a system is shown in schematic form comprising event-sequencing logic **1000** (transistor-based circuitry including electrical node sets each having a voltage configuration that manifests an informational structure, e.g.). Event-sequencing logic **1000** may include one or more instances of accounts **1001**, **1002**; of media items **1011**, **1012**; of statements **1021**, **1022**; of indications **1041**, **1042**, **1043**, **1044**, **1045**, **1046**, **1047**, **1048**, **1049**; of subsets **1051**, **1052** (comprising a list **1055**, e.g.) or of authorization codes **1057**, **1058**. One or more instances of event-sequencing logic **1000** may be implemented, for example, in network **390** or in device **440.**

[0059] One or more dependent-to-independent conversion modules (DICM) **111**, **112** may be applied for identifying a single independent identifier **151** corresponding to any given dependent identifier **152**. In some contexts this can be implemented without any expansion of existing equipment identity registers **361, 461;** home location registers **363, 463;** or visitor location registers **364, 464**. In some variants, for example, DICM **111** may implement such conversion simply by rounding down or by selecting the next-lower network routing tag (comprises a real mobile number **120** or similar independent identifier **151,** e.g.) listed in HLR **363** or VLR **364** (e.g. by selecting "206-555-2460" as the highest listed value not exceeding "206-555-2461"). This can occur, for example, in a context in which support service provider **425** assigns a block of virtual numbers (a range **158** of several, e.g.) in association with a given independent identifier **151** (in the same row **154**, e.g.).

[0060] In association with a network **390** that facilitates wireless and other interpersonal communications, support service provider **425** establishes multiple dependent identifiers **152** (hundreds or thousands, e.g.) into one or more groups **201**, **202**, **203**. The identifiers within each group (range **158**, e.g.) have one or more shared intrinsic attributes **221**, **222**, **223**, **224**, **225**, **226**. (Each such attribute is "shared" in that it describes a group of two or more such identifiers and "intrinsic" in that determining whether an identifier has the attribute does not require access to any central directory or other extrinsic source.) Each such dependent identifier corresponds to a virtual entity (device or party, e.g.) suitable for receiving or responding to communications. Support

service provider **425** broadcasts one or more such attributes **221-226** (whichever ones are in effect, e.g.) so that other communication service or product providers can distinguish identifiers (of a communication initiator or recipient, e.g.) that satisfy an attribute from those that do not. One or more dependent identifiers **152** (alphanumeric sequences or other digital values in a dependent identifier range **158** of several consecutive values, e.g.) have attribute **221** if and only if the last five digits of each form a number that falls between 24400 and 25999. Likewise one or more dependent identifiers **152** have attribute **222** if and only if none of the characters thereof (letters or digits, e.g.) is in a predefined "disqualifying expression" list **251** (e.g. a "5" or "9"). Likewise one or more dependent identifiers **152** have attribute **223** if and only if the last three digits form a number not evenly divisible by N (with N being an integer greater than 1 and less than 9 and the 3-digit number having a nonzero remainder when divided by N, e.g.). Likewise one or more dependent identifiers **152** have attribute **224** if and only if the last two digit-pairs in a numerical portion of the identifier can be multiplied together to form a product between A and B (with $44 < A < 444$ and $444 < B < 4444$, e.g.). This can occur, for example, in a context in which one or more such intrinsic attributes **221**-226 (or combinations thereof) can be used as determinants **271-273** (each defining a prerequisite **261** or exception **262**, e.g.) of a readily disseminated protocol **267** that is effective for determining whether there is any substantial likelihood (a likelihood of about 1% or more, e.g.) that a communication recipient identifier **205** (a mobile number or other unique address, e.g.) is actually a dependent identifier **152** (virtual device identifier, e.g.); in which a negative determination effectively establishes that the communication recipient identifier **205** is actually not a dependent identifier **152**; in which such a determination would otherwise require protocol **267** to include consulting an extrinsic source (a central lookup table residing on a server **428** at a central facility maintained by support service provider **425**, e.g.) for every communication routed through network **390**; and in which a large majority of such communications require no such consultations by virtue of protocol **267** being implemented in a local instance (within a server or mobile device along a primary channel between or among participants to a communication, e.g.). In some contexts, moreover, an app **831** implementing protocol **267** will maintain a local value **835** indicative of when it was installed or first invoked and will automatically

reconfigure itself after an expiration of a set period (of X days with 4 < X < 444, e.g.) by retrieving one or more new parameters **211**, **212**, **213**, **214** (new values for one or more A or B or N or X, e.g.) or a replacement protocol **268** (implemented in an app **832** from server **426**, e.g.).

[0061] As described herein, interpersonal communications **531-535** may be unidirectional or bidirectional. In light of teachings herein numerous existing techniques may be applied for configuring special purpose circuitry or other structures effective for implementing a unidirectional communication as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8391930 ("Method and system for using user-selected alert patterns"); U.S. Pat. No. 8352872 ("Geographic location notification based on identity linking"); U.S. Pat. No. 8346879 ("Detecting conflicts in email messages"); U.S. Pat. No. 8243887 ("Identification of notifications in a mass notification system"); U.S. Pat. No. 8238869 ("Lifesaver personal alert and notification device"); U.S. Pat. No. 8145566 ("Method and system for notifying customers of transaction opportunities"); U.S. Pat. No. 7961076 ("Methods and apparatuses for remote control of vehicle devices and vehicle lock-out notification").

[0062] In light of teachings herein numerous existing techniques may be applied for configuring special purpose circuitry or other structures effective for establishing a bidirectional communication as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8358975 ("Signaling over cellular networks to reduce the Wi-Fi energy consumption of mobile devices"); U.S. Pat. No. 8295352 ("Process for delivering a video stream over a wireless bidirectional channel between a video encoder and a video decoder"); U.S. Pat. No. 8244228 ("Method and apparatus for providing a mobile wireless local area network"); U.S. Pat. No. 8160304 ("Interactive systems and methods employing wireless mobile devices"); U.S. Pat. No. 8049664 ("Multi-band, multi-channel, location-aware communications booster"); U.S. Pat. No. 8004556 ("Conference link between a speakerphone and a video conference unit"); U.S. Pat. No. 7761505 ("System, method and computer program product for concurrent performance of video teleconference and delivery of multimedia presentation and archiving of same"); U.S. Pat. No. 7254123 ("Control of a wireless conference telephone system").

[0063] A party **401** ("Susan") buys a new mobile device **440** to share with one or more other parties **402**, **403** ("Nancy" and "Carol") who work or live in a common facility (business or residence, e.g.). As configured by an OEM (device manufacturer **485**, e.g.), mobile device **440** initially contains a party identifier list **650** and a contingent default protocol **711**. Contingent default protocol **611** effectively designates (in row **660**, e.g.) two or more response protocols **601**, **602** each of which is only invoked for an incoming communication **531** (comprising call **521** or text **522** or other content **523**, e.g.) that does not include any particular party identifier **610**, **620**, **630** (a recognized entity to whom the communication is targeted, e.g.). In that state, device-executable firmware **439** within device **440** responds to incoming communications in a manner that is outwardly conventional (by causing a speaker aboard device **440** to sound a "traditional ring" sound **571** in a context **651** of an incoming phone call **521** or to sound a "simple chime" sound **572** in a context **652** of an incoming text **522**, e.g.).

[0064] Susan configures shared mobile device **440** for a purpose of having fewer devices than device users in her household. Mobile device **440** is identified by a network routing tag **672** (e.g. a phone number of "206-555-2460") by which Susan may receive a communication **531** (a call **521** or text **522** comprising a wireless signal **497** that includes that network routing tag **672**, e.g.) conventionally. Alternatively or additionally, wireless signal **497** may include one or more account-specific headers **371** each associated with one or more user data items **681**, **682**, **683** as described herein. In a context in which an incoming communication is targeted to less than all users of device **440**, for example, account-specific header **371** may be a digital value indicating a particular individual (a virtual cell phone number of "206-555-2461" belonging to Susan, e.g.) or a particular group **204** of individuals (a virtual cell phone number of "206-555-2465" shared among several, e.g.).

[0065] Soon after purchase, Susan reconfigures device **440** to identify herself (using party identifier **610**, e.g.) in association with several contingent response protocols **611**-**615** that she prefers, respectively corresponding to a recognized context **651**-**655** (each symbolized as a column, e.g.). In response to a context **653** of an anonymous incoming communication **531**, for example—one that does not identify any initiator/sender—she expresses her selection of a response protocol **613** of passive

response—sending a call **521** directly to voice mail or likewise silently receiving other instances of such incoming communications **531**. This can occur, for example, in a context in which a range of virtual mobile numbers **121-124** (e.g. "206-555-2461" et seq.) are each used for identifying a respective party **401**, **402**, **403** and in which such virtual mobile numbers all correspond to a single real mobile number **120** (e.g. "206-555-2460") that uniquely identifies mobile device **440**.

[0066] In a first network configuration, wireless communication service provider **360** does not include a virtual device identifier recognition module **365**. Rather, the "virtual" identifiers associated with mobile device **440** are implemented as real phone lines associated with server **428**. When party **302** ("Roger") initiates a communication (via wireless communication service provider **360**) by dialing a mobile number of "206-555-2462," that communication is routed to support service provider **425**. VRC module **426** completes the call by establishing a new channel (from server **428** and via BTS **459**, e.g.) to device **440** and extending the incoming communication from party **302** along that new channel to device **440**.

[0067] In a second network configuration, wireless communication service provider **360** includes a virtual device identifier recognition module **365**. The "virtual" identifiers associated with mobile device **440** are implemented in a lookup table resident in VRC module **426** (resident in server **428** or network **390**, e.g.). When party **302** ("Roger") initiates a communication (by dialing a mobile number of "206-555-2462," e.g.) that communication is redirected to the corresponding "real" destination identifier (an independent identifier **151** implemented as a "real" mobile number of "206-555-2460," e.g.).

[0068] With either of these network configurations, a wireless signal **497** arriving at mobile device **440** includes information similar to that of datastructure **680**, including a network routing tag ("206-555-2460," e.g.) by which device **440** has been identified and with either an account-specific header (e.g. comprising one or more specific party identifiers **610**, **620**, **630**) that identifies a person or as a recipient-nonspecific incoming call (signaling one or more response protocols **601-605** along row **660**, e.g.). This provides device **440** with information about which of two or more parties **401**, **402**, **403** is intended to receive the communication.

[0069] Firmware **439** includes one or more features configured to facilitate sharing mobile device **440** among two or more parties **401**, **402**, **403**. Two of the parties **401**, **402** who use device **440** may be logged onto device **440** concurrently, even in a context in which only one is actively using device **440**. A first communication **531** (content **523** resulting from real-time input from a party **301** using device **321**, e.g.) comprises a wireless signal **497** that includes real mobile number **120**. A recipient recognition module **771** (within an incoming communication processing module **581** aboard mobile device **440**) determines that no party indication tag is present among the components (in datastructure **680**, e.g.) of the communication **531** and therefor applies one or more default response protocols **601-605** (effectively routing the communication **531** to a "default" user, e.g.).

[0070] In light of teachings herein numerous existing techniques may be applied for configuring special purpose circuitry or other structures effective for determining which one or more users are currently recognized or online as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8443420 ("System for communicating with a mobile device server"); U.S. Pat. No. 8341246 ("Personal content server apparatus and methods"); U.S. Pat. No. 8266313 ("Live media subscription framework for mobile devices"); U.S. Pat. No. 8261090 ("Login to a computing device based on facial recognition"); U.S. Pat. No. 8166524 ("Method and system for the authentication of a user of a data processing system"); U.S. Pat. No. 8060109 ("Authorized location reporting mobile communication system"); U.S. Pat. No. 7844684 ("Live media captioning subscription framework for mobile devices"); U.S. Pat. No. 7693752 ("Mobile commerce framework"); U.S. Pat. No. 7421477 ("Real-time media captioning subscription framework for mobile devices"); U.S. Pat. No. 7373384 ("Short message (SMS) storage system"); U.S. Pat. No. 7353016 ("Call intercept methods, such as for customer self-support on a mobile device").

[0071] Initially a communication that arrives at mobile device **440** without identifying any parties **401**, **402** who are currently logged in immediately triggers a response protocol **604** by which module **583** sends a "no recipient available" response message to the device **321** via which the communication originated. As a result of no default user being designated (or of a currently-designated default user being offline),

therefore, the first communication **531**—having a datastructure lacking any party indication tag—invokes the module **583** that implements response protocol **604**.

[0072] A second communication **532** later arrives at mobile device **440** with a real mobile number **120** that uniquely identifies mobile device **440**, but this time comprising a wireless signal **497** having a party identification tag (e.g. an occurrence of "63") that specifically identifies party **403** ("Carol"), who is still not logged onto mobile device **440**. As a result of party **403** still being offline, the second communication **532** invokes a response protocol **542** by which module **582** sends a party-specific response message (e.g. "Carol is not available" sent as a real-time response to party **302**) to the device **322** that originated the second communication **532**.

[0073] At least one independent identifier **151** (e.g. a real mobile number **120**) and at least one dependent identifier **152** (e.g. one or more virtual mobile numbers **121**-**124** corresponding to real mobile number **120**) are commonly assigned to mobile device **440** indefinitely or for a fixed period **575** (of a week or more, e.g.) by installing a component **861** (smartcard **851** or app **852**, e.g.) associated with at least one virtual mobile number **122**, **123** (in a one-to-one or one-to-many association, e.g.) into a mobile device uniquely associated with at least one real identifier (e.g. a real mobile number **120** or other independent identifier **151**). Susan configures an on-board user directory **561** so that each of two or more parties **401**, **402**, **403** who use device **440** corresponds with a single respective one of the available dependent identifiers **152** and with a corresponding list **710** of operating modes (e.g. defined by a corresponding row **661**, **662**, **663** of response protocols). Each instance of such lists **710** includes one or more selectively configurable operating modes (response protocols **635**, e.g.) as described below.

[0074] By one or more such techniques, an invocation of firmware **430** causes mobile device **440** to switch between a general purpose operating mode **703** (appropriate when a privileged party **401** is identified as a primary current user, e.g.) and a limited purpose operating mode **707** (appropriate when privileged party **401** is not in possession of mobile device **440**, e.g.). Device **440** is configured to be updated by a primary user (party **401**) so as to provide a comprehensive registry **721** of current users of device **440.** This can occur, for example, in a context in which a virtual mobile number **124** is exclusively associated with a mobile device **440;** in which the primary user previously

associated the virtual mobile number **124** with a specific party; in which the primary user later configured comprehensive registry **721** to dissociate the virtual mobile number **124** from the specific party; in which such modifications to comprehensive registry **721** are implemented locally (within device **440,** e.g.); and in which subsequent communications directed to the virtual mobile number **124** would otherwise be mishandled (handled according to one or more generic response modes **704, 705** not in accord with preferences of the primary user, e.g.).

[0075] Initially all charges incurred by mobile device **440** (for usage or otherwise as authorized by Susan, e.g.) are assigned to an account **1001** (expressed in minutes or dollars or other digital units, e.g.) associated with a particular user (Susan, e.g.). Mobile device **440** is configured to limit charges to account **1001** by using WLAN within the facility partly based upon being in operating mode **707** and partly based on being in overlap zone **376**.

[0076] In light of teachings herein, numerous existing techniques may be applied for configuring special-purpose circuitry or other structures effective for cost allocations as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8380188 ("System and method for temporarily accessing another user's service"); U.S. Pat. No. 8311532 ("Method and system for enabling personalized shared mobile phone usage"); U.S. Pat. No. 8086239 ("Infrastructure for wireless telecommunication networks"); U.S. Pat. No. 8045957 ("Computer program product to indicate a charge for a call"); U.S. Pat. No. 7965997 ("System and method to support multiple wireless accounts for a given subscriber"); U.S. Pat. No. 7813716 ("Method of providing information to a telephony subscriber"); U.S. Pat. No. 6788927 ("Financing party payment for calls with a wireless subscriber"); U.S. Pat. App. No. 13/954,756 ("Protocols for facilitating broader access in wireless communications"); U.S. Pat. Pub. No. 2012/0202454 ("System and method for authorizing and monetizing collect cellular telephone calls"); U.S. Pat. Pub. No. 2011/0191205 ("Portable communicator"); U.S. Pat. Pub. No. 2009/0227229 ("Method and system for enabling personalised shared mobile phone usage"); U.S. Pat. Pub. No. 2008/0167045 ("Service handover control apparatus using an end-to-end service handover and method using the apparatus"); and U.S. Pat. Pub. No. 2005/0190902 ("Network support for billing customer calls according to tailored billing lists").

[0077] As a privileged party **401**, Susan may selectively disable a particular operating mode **706** (establishing communications from device **440** via access point **350**, e.g.) whenever another party **402** (specified by Susan) is using device **440** (to trigger enhanced record-keeping of such communications, e.g.).

[0078] One or more incoming communications that include a party identifier **620** (an account-specific header **671** that corresponds specifically to Carol, e.g.) may invoke a special-purpose incoming context differentiation module **584** that operates in one mode **624** (sounding Carol's ring, e.g.) if Carol is apparently present and in another mode **625** (permitting a voice or text message to be passed to Carol silently, e.g.) otherwise. This can occur, for example, in an implementation in which Carol has configured several such response protocols 621-625; in which module **584** includes a camera **961** operably coupled to a face recognition module or a microphone **962** operably coupled to a voice recognition module; and in which Carol has expressed a preference for such contingently-audible notifications. Alternatively or additionally, such conspicuous responses may depend upon one or more of (1) whether another party is apparently present; (2) whether a particular device **321** or other entity (party 301, e.g.) apparently initiated the communication; or (3) other such communication provenance data or other determinants described herein.

[0079] In light of teachings herein, numerous existing techniques may be applied for configuring special-purpose circuitry or other structures effective for comparing a face or other informational element with a database of similar items as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8261090 ("Login to a computing device based on facial recognition"); U.S. Pat. No. 8000528 ("Method and apparatus for authenticating printed documents using multi-level image comparison based on document characteristics"); U.S. Pat. No. 7949191 ("Method and system for searching for information on a network in response to an image query sent by a user from a mobile communications device"); U.S. Pat. No. 7908518 ("Method, system and computer program product for failure analysis implementing automated comparison of multiple reference models"); U.S. Pat. No. 7856137 ("Apparatus and method for verifying image by comparison with template image"); U.S. Pat. No. 7831559 ("Concept-based trends and exceptions tracking"); U.S. Pat. No. 7787693 ("Text detection on mobile

communications devices"); U.S. Pat. No. 7644055 ("Rule-based database object matching with comparison certainty"); U.S. Pat. No. 7443787 ("Cluster system, cluster member, and failure recovery method and program thereof"); U.S. Pat. No. 6424729 ("Optical fingerprint security verification using separate target and reference planes and a uniqueness comparison scheme"); U.S. Pat. No. 6167398 ("Information retrieval system and method that generates weighted comparison results to analyze the degree of dissimilarity between a reference corpus and a candidate document"); U.S. Pat. No. 6134014 ("Apparatus and method of inspecting phase shift masks using comparison of a mask die image to the mask image database").

[0080] In light of teachings herein numerous existing techniques may be applied for configuring special purpose circuitry or other structures effective for implementing a timing or other comparison as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8325901 ("Methods and apparatus for providing expanded telecommunications service"); U.S. Pat. No. 8321727 ("System and method responsive to a rate of change of a performance parameter of a memory"); U.S. Pat. No. 8320261 ("Method and apparatus for troubleshooting subscriber issues on a telecommunications network"); U.S. Pat. No. 8315622 ("Motion adaptive communications device and integrated circuits for use therewith"); U.S. Pat. No. 8311579 ("Multi-mode mobile communication device with motion sensor and methods for use therewith"); U.S. Pat. No. 8295395 ("Methods and apparatus for partial interference reduction within wireless networks"); U.S. Pat. No. 8290509 ("Deactivation system and method for a transferable device"); U.S. Pat. No. 8264953 ("Resilient data communications with physical layer link aggregation, extended failure detection and load balancing"); U.S. Pat. No. 8224349 ("Timed fingerprint locating in wireless networks"); U.S. Pat. No. 8195478 ("Network performance monitor"); U.S. Pat. No. 8184580 ("Data packet communication scheduling in a communication system"); U.S. Pat. No. 7881992 ("Methods and systems for processing and managing corporate action information"); and U.S. Pat. No. 7853268 ("GPS enabled cell phone location tracking for security purposes").

[0081] In light of teachings herein numerous existing techniques may be applied for configuring special purpose circuitry or other structures effective for signaling an availability or other status as described herein without undue experimentation. *See, e.g.,*

U.S. Pat. No. 8306005 ("Dynamic communication and method of use"); U.S. Pat. No. 8289210 ("Location measurement acquisition adaptive optimization"); U.S. Pat. No. 8271626 ("Methods for displaying physical network topology and environmental status by location, organization, or responsible party"); U.S. Pat. No. 8260896 ("Monitoring business machines using a mesh network on field nodes"); U.S. Pat. No. 8249616 ("Satellite (GPS) assisted clock apparatus, circuits, systems and processes for cellular terminals on asynchronous networks"); U.S. Pat. No. 8208489 ("Method for reporting downstream packet resequencing status in cable modem"); U.S. Pat. No. 8195198 ("System, method and apparatus for protecting privacy when a mobile device is located in a defined privacy zone"); U.S. Pat. No. 8108501 ("Searching and route mapping based on a social network, location, and time"); U.S. Pat. No. 8059788 ("Telephone software testing system and method"); U.S. Pat. No. 8059011 ("Outage notification system"); U.S. Pat. No. 8037126 ("Systems and methods of dynamically checking freshness of cached objects based on link status"); U.S. Pat. No. 8010230 ("Robotic ordering and delivery apparatuses, systems and methods"); U.S. Pat. No. 8005911 ("Systems for communicating current location information among mobile internet users and methods therefor"); U.S. Pat. No. 7860648 ("Map display system and method"); and U.S. Pat. No. 7392017 ("Assessing wireless network quality").

[0082] In light of teachings herein numerous existing techniques may be applied for configuring special purpose circuitry or other structures effective for generating and using provenance data as described herein without undue experimentation. *See, e.g.,* U.S. Pat. No. 8412946 ("Trustworthy timestamps and certifiable clocks using logs linked by cryptographic hashes"); U.S. Pat. No. 8406753 ("System and method for generating a location estimate using uniform and non-uniform grid points"); U.S. Pat. No. 8369871 ("System and method for mobile device self-location"); U.S. Pat. No. 8346282 ("Method and system for locating mobile stations using call measurement data"); U.S. Pat. No. 8284100 ("Providing indoor location, position, or tracking of a mobile computer using sensors"); U.S. Pat. No. 8265655 ("Procedure to increase position location availability"); U.S. Pat. No. 8301375 ("Interface for a GPS system"); U.S. Pat. No. 8068836 ("Method and device for transferring an ongoing communication in which a mobile terminal is involved between a first and a second base stations and wherein one of the base stations

is located in a moving conveyance"); U.S. Pat. No. 8032149 ("Tasking and reporting method and implementation for wireless appliance location systems"); U.S. Pat. No. 7519373 ("System and method for geo-location of mobile appliances using diverse standard tasking and reporting").

[0083] A user directory **561** aboard mobile device **440** is configured by a protocol **543** that disassociates a secondary user (party **402**, e.g.) from a virtual identifier (mobile number **124**, e.g.) with which she was previously associated. Selection module **753** implements a protocol for determining which of the two or more parties **401**, **402**, **403** are intended to receive an incoming communication (coming into device **440**, e.g.). Protocol **543** results in a device-specific party-nonspecific failure message **821** (a notification resident in firmware **439** that "this virtual number is associated with a private entity but is not currently assigned," e.g.) being sent as a real-time response **812** to a subsequent incoming communication **534** unless an additional protocol **544** associating a virtual identifier (e.g. "206-555-2462") with a device-specific party-specific failure message **822** ("Nancy is not currently accepting communications at this number or address," e.g.) has been implemented.

[0084] In another scenario, a mobile device **322** (implementing device **400** of **FIG. 4**, e.g.) acquired by another party **302** ("Roger") is retrofitted (by Roger or a device reconfiguration service provider **388**, e.g.) with a jailbreak or other rooting protocol **718** that includes installing a substitute subscriber identity module (SIM) **472** or other components **862** to facilitate device virtualization or device sharing as described herein. Such a substitute SIM **472** may include a recipient indicator selection module **751** or may include an authorization code **1057** configured to cause update module **171** to download recipient indicator selection module **751** (from a server **428** remote from mobile device **322**, e.g.). As a result of such configuration, mobile device **322** thereafter includes an incoming wireless signal processing protocol **716** and one or more other mobile device protocols **717** as described herein for facilitating mobile device sharing (of device **322** among several users, e.g.) as variously described herein. This permits one or more processors aboard shared mobile device **322** to respond to a recipient-selective incoming wireless signal **497** intelligently as described herein.

[0085] In some variants account-specific header **371** may be a local identifier of several bits (a 3-bit binary value of "001" or an 8-bit binary value of "01111101", e.g.) that uniquely identifies Roger locally within a context of device **322** (but not in network **390**, e.g.). This permits mobile device **322** to behave responsively to which of several user sets (numbered 0 to 63, e.g.) are active (logged in or recently having used device **322**, e.g.) or indicated (by a communication or user configuration protocol **719**, e.g.). In a context in which a user designates a subset **1051** of users (by providing a list **1055** that identifies users "001" and "003" but not others, e.g.), for example, a single device-detectable user configuration input indication **1042** (key press or utterance, e.g.) may cause an app **833** or media item **1011** (audio recording, e.g.) to be installed and thereby made selectively accessible for the user-designated subset **1051** of users but not for any other user of device **322**. Likewise an interpersonal communication **701** directed to a particular user (e.g. a text **522** to Roger's virtual cell phone number) may include one or more items **681** of interpersonal message content **523** as well as one or more items **682** of protocol selection content **523** (a parameter directing device **322** not to manifest the communication **701** in the presence of any users other than the recipient identified by account-specific header, e.g.). Alternatively or additionally one or more such items **M382** may identify the device user (party **402**, e.g.) who initiated the communication **701**.

[0086] In another context, an indicator selection module **752** aboard device **322** implements a tag recognition protocol **715** by causing mobile device **322** to present a visible or audible recipient indication **1041** (one or more of displayed text or a voice saying "call for Roger" via a speaker **971** or display **972** of device **322** e.g.) selected partly based on the one or more party indication tags (an account-specific header **371** of "1" or "61," e.g.) from among several such indications **1043-1045** that reside in the mobile device.

[0087] In some variants of event sequencing described herein, Roger configures shared mobile device **322** so as to accommodate a guest user temporarily (Larry receiving or sending messages via device **322** for a time period **661** specified by Roger of less than a month, e.g.) or so as to monitor or control a guest user access (preventing Larry from

accessing one or more protocols **712**, **713** or data items resident on device **322** and accessible to Roger, e.g.).

[0088] In some contexts, for example, protocol **713** may enable device **322** to access WLAN service (via an access point within a shared residence, e.g.) that not all users registered to device **322** can invoke. That way, for example, a more-privileged user (Roger, e.g.) can send or receive messages from WLAN-only zone **374** (a cellar, e.g.) within which at least one registered user (Larry, e.g.) cannot. In some contexts, such other users may need to bring mobile device **322** to a cell-only zone **315** (a balcony within an effective range of a cell tower, e.g.) to send or receive interpersonal communication. In other contexts, Roger may selectively disable other users' outgoing communications via device **322** or may selectively permit one or more other registered users to access incoming communications via device **322** only after reviewing one or more user data items **681**-**683** associated with the incoming wireless signal **397**. In some contexts a more-privileged user (an owner of an account **1002** associated with device **322**, e.g.) can likewise control access to other cost-determinant resources. Such resources may, for example, include (1) a metered data download protocol **714** charged to account **1002** or (2) authorization for a charge to account **1002** at least partly based on an affiliation-dependent mobile device (device **440**, e.g.) using a cellular linkage in lieu of a WLAN linkage. (As used herein, a device is "affiliation dependent" if and only if it is at least one of an unsubscribed mobile device or a formerly-subscribed mobile device or a formerly-charged mobile device.)

[0089] In an instance of event-sequencing logic **900** implementing a mobile device **322**, **440** described above, signal processing module **958** receives a wireless signal **397**, **497** (via antenna **956**, e.g.) including a network routing tag **672** (a phone number **120** identifying the recipient mobile device, e.g.) and one or more account-specific headers **671** (designating one or more parties **302**, **402** intended to receive user data, e.g.). The user data may include one or more voice data items **681**, graphic image data items **682**, or other such message content **523**.

[0090] One or more selection modules **754** selects a specific-party recipient indication **1047** (a ring tone unique to a caller/recipient pairing, e.g.) from among two or more such indications **1047**-**1049** according to a registry **722** that contains a record of (a)

which parties are known to device **440** and (b) which of those parties are logged into device **440** and (c) which of those parties are apparently present within a detection zone of a camera **961**, microphone **962**, or other sensor **963**. For an incoming communication designating either party **402** (Nancy) or party **403** (Carol), for example, selection modules **754** selects a recipient-party-specific indication (of a sound **573** or text, such as a voice or display message saying "call for Carol" via a presentation module **970** of device **440**, e.g.) as a conditional response to either (1) Nancy being offline and Carol being online or (2) Nancy being apparently absent and Carol being apparently present within a detection range (line of sight, e.g.) of characterization module **965**. This can occur, for example, in a context in which such party designations take the form of numerical tags ("62" & "63," e.g.) interpreted by a tag recognition protocol **546** (recognizing a call for Susan if a last digit is "1" for Nancy if a last digit is "2" or for Carol if last digit is "3," e.g.).

[0091] A communication is initiated by a user input component (a keypad or microphone **962**, e.g.) obtaining (from party **302** using device **322**, e.g.) an identifier of a first recipient device user ("Carol" or "206-555-2463," e.g.). A determination is made whether the identifier is aliased. If the determination is positive, an aliasing-determination-dependent tag is offset from the identifier of the first recipient device user according to a conversion function (by arithmetic transfer function like "subtracting 3" or by a lookup table, e.g.). If the determination is negative, the aliasing-determination-dependent tag is obtained by assigning an identifier of a first recipient device user as the aliasing-determination-dependent tag ("206-555-2460," e.g.). The communication is established by invoking transistor-based circuitry configured to cause a PSTN selectively to route a message that uniquely identifies the first recipient device user (Carol) to a shared mobile device **440** identified by the aliasing-determination-dependent tag.

[0092] In some contexts, Roger (party **302**) may implement one or more privacy protocols **712** when directing a communication **535** via a virtual identifier (e.g. calling Carol at "206-555-2463"), such as in a context in which he is concerned that a digital sequence that identifies him will be filtered automatically or manually intercepted (by a hostile party, e.g.). In light of teachings herein, such a protocols may be implemented in various ways. Privacy protocol **712** may (optionally) include, for example, transmitting a false natural language statement **1021** (a statement from Roger like "this is Larry and I

urgently need to talk to Nancy" in text or audio format, e.g.) or another indication **1046** misidentifying a user who initiates the communication as another entity.

[0093] Alternatively or additionally, a portion of communication **535** (one or more data items **681-683,** e.g.) of may be encrypted in a way that effectively prevents an unintended recipient from accessing that portion. In a context in which communication **535** arrives when an intended recipient (party **403** designated by an account-specific header, e.g.) is not logged onto device **440** and another party **401**, for example, that portion may be shown as encrypted or hidden entirely. At a later time at which party **403** enters a private key or personal biometric by which she is authenticated (identified by an account-specific header **671,** e.g.), that portion is extracted (decrypted using the private key, e.g.) and presented at device **440.** Alternatively or additionally, such encryption and decryption for a substantial communication (video call or extended telephone call, e.g.) may be contingent upon two or more parties **302, 403** to the communication using a mobile device **440** that is either currently charging or adequately charged (above a preset threshold that corresponds to a charging state of more than 10%, e.g.)

[0094] All of the patents and other publications referred to above are incorporated herein by reference generally—including those identified in relation to particular new applications of existing techniques—to the extent not inconsistent herewith (in each respective latest edition, where applicable). While various system, method, article of manufacture, or other embodiments or aspects have been disclosed above, also, other combinations of embodiments or aspects will be apparent to those skilled in the art in view of the above disclosure. The various embodiments and aspects disclosed above are for purposes of illustration and are not intended to be limiting, with the true scope and spirit being indicated in the final claim set that follows.

CLAIMS

1. A communication management system comprising:

transistor-based circuitry configured to map a first response protocol comprising a first operational parameter to a first recipient party identifier and to an incoming phone call context;

transistor-based circuitry configured to obtain a network routing tag identifying a first mobile device from a wireless signal that includes an account-specific header that identifies which of two or more parties who share the first mobile device is intended to receive a first communication at the first mobile device, the two or more parties including a first party and a second party, the first recipient party identifier selectively identifying the first party; and

a first electrical node set with a first voltage configuration that manifests a decision whether or not to route the first communication to the second party as an automatic and conditional response to a determination whether or not the account-specific header that identifies which of the two or more parties who share the first mobile device is intended to receive the first communication includes a party indication tag.

2. The communication management system of claim 1 further comprising:

the first mobile device, including at least the first electrical node set with the first voltage configuration that manifests the decision whether or not to route the first communication to the second party as the automatic and conditional response to the determination whether or not the account-specific header that identifies which of the two or more parties who share the first mobile device is intended to receive the first communication includes the party indication tag, the second party being a default user of the first mobile device, the first operational parameter relating to software executable by one or more processors.

3. The communication management system of claim 1 further comprising:

a second electrical node set having a second voltage configuration that manifests the first recipient party identifier selectively identifying the first party, the second electrical node set being a component of one or more processors.

4. A communication management method comprising:

mapping a first response protocol comprising a first operational parameter to a first recipient party identifier and to an incoming phone call context;

obtaining a network routing tag identifying a first mobile device from a wireless signal that includes an account-specific header that identifies which of two or more parties who share the first mobile device is intended to receive a first communication at the first mobile device, the two or more parties including a first party and a second party, the first recipient party identifier selectively identifying the first party; and

implementing a first electrical node set with a first voltage configuration that manifests a decision whether or not to route the first communication to the second party as an automatic and conditional response to a determination whether or not the account-specific header that identifies which of the two or more parties who share the first mobile device is intended to receive the first communication includes a party indication tag.

5. The communication management method of claim 4 further comprising:

obtaining an indication whether or not a specific identifier is apparently independent by invoking a first intrinsic recognition module and by invoking a second intrinsic recognition protocol.

6. The communication management method of claim 4 further comprising:

obtaining a determination whether an integer is evenly divisible by X as a component of obtaining an indication whether or not a specific identifier is apparently independent, X being greater than 1, the integer being a component of the specific identifier, the determination comprising an intrinsic property of the specific identifier.

7. The communication management method of claim 4 further comprising:

establishing a wireless linkage through a component of a second mobile device and through a free space medium adjacent to the component of the second mobile device.

8. The communication management method of claim 4 further comprising:

configuring a base transceiver station to obtain the network routing tag identifying the first mobile device from the wireless signal that includes the account-specific header that identifies which of the two or more parties who share the first mobile device is intended to receive the first communication at the first mobile device.

9. The communication management method of claim 4 further comprising:

causing the first mobile device to undergo a wireless linkage handover to or from a wireless local area network (WLAN) access point.

10. The communication management method of claim 4 further comprising:

initiating an investigation protocol effective to determine whether or not a physical destination corresponding to the network routing tag can be found, the physical destination comprising the first mobile device.

11. The communication management method of claim 4 further comprising:

configuring the first communication as a unidirectional communication.

12. The communication management method of claim 4 further comprising:

identifying the first party with a first virtual mobile number that corresponds to a single real mobile number that uniquely identifies the first mobile device;

identifying the second party with a second virtual mobile number that corresponds to the single real mobile number that uniquely identifies the first mobile device;

identifying a third party with a third virtual mobile number that corresponds to the single real mobile number that uniquely identifies the first mobile device; and

deciding whether or not to respond silently to an incoming communication partly based on whether the incoming communication is anonymous and partly based on

whether the incoming communication includes the third virtual mobile number that corresponds to the single real mobile number that uniquely identifies the first mobile device.

13. The communication management method of claim 4 further comprising:

causing the first mobile device to respond to the first communication including the party indication tag by producing a first sound if the first communication identifies an initiator of or a sender of the first communication and otherwise by silently receiving the first communication.

14. The communication management method of claim 4 further comprising:

configuring the first mobile device with the second party being a default user of the first mobile device.

15. The communication management method of claim 4 further comprising:

transmitting an indication that no recipient is available to a second mobile device via which the first communication originated automatically and conditionally, partly based on a determination that the first communication lacks a party indication tag and partly based on a currently-designated default user of the first mobile device being offline, the currently-designated default user being the second party.

16. The communication management method of claim 4 further comprising:

transmitting an indication that no recipient is available to a second mobile device via which the first communication originated automatically and conditionally, partly based on a determination that the first communication lacks a party indication tag and partly based on an indication of no default user of the first mobile device having been designated.

17. The communication management method of claim 4 further comprising:

configuring a second electrical node set with a second voltage configuration that manifests the first recipient party identifier selectively identifying the first party, the second electrical node set being a component of one or more processors.

18. The communication management method of claim 4 further comprising:

retrofitting the first mobile device with a rooting protocol that includes installing a substitute subscriber identity module.

19. A communication management system comprising:

means for mapping a first response protocol comprising a first operational parameter to a first recipient party identifier and to an incoming phone call context;

means for obtaining a network routing tag identifying a first mobile device from a wireless signal that includes an account-specific header that identifies which of two or more parties who share the first mobile device is intended to receive a first communication at the first mobile device, the two or more parties including a first party and a second party, the first recipient party identifier selectively identifying the first party; and

means for manifesting a decision whether or not to route the first communication to the second party as an automatic and conditional response to a determination whether or not the account-specific header that identifies which of the two or more parties who share the first mobile device is intended to receive the first communication includes a party indication tag.

FIG. 1

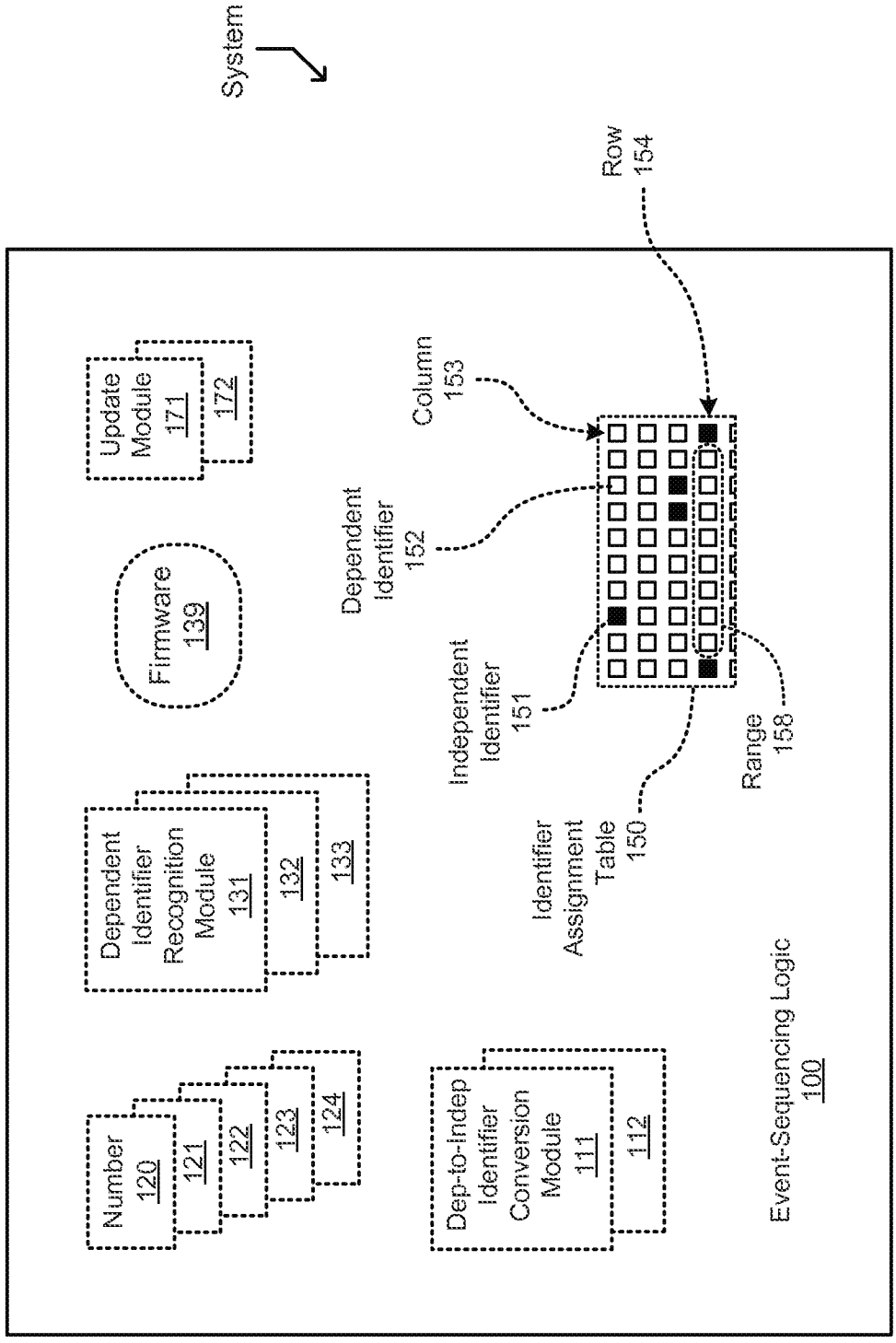

System
Row 154
Column 153
Update Module 171
172
Firmware 139
Dependent Identifier 152
Independent Identifier 151
Dependent Identifier Recognition Module 131
132
133
Identifier Assignment Table 150
Range 158
Number 120
121
122
123
124
Dep-to-Indep Identifier Conversion Module 111
112
Event-Sequencing Logic 100

FIG. 2

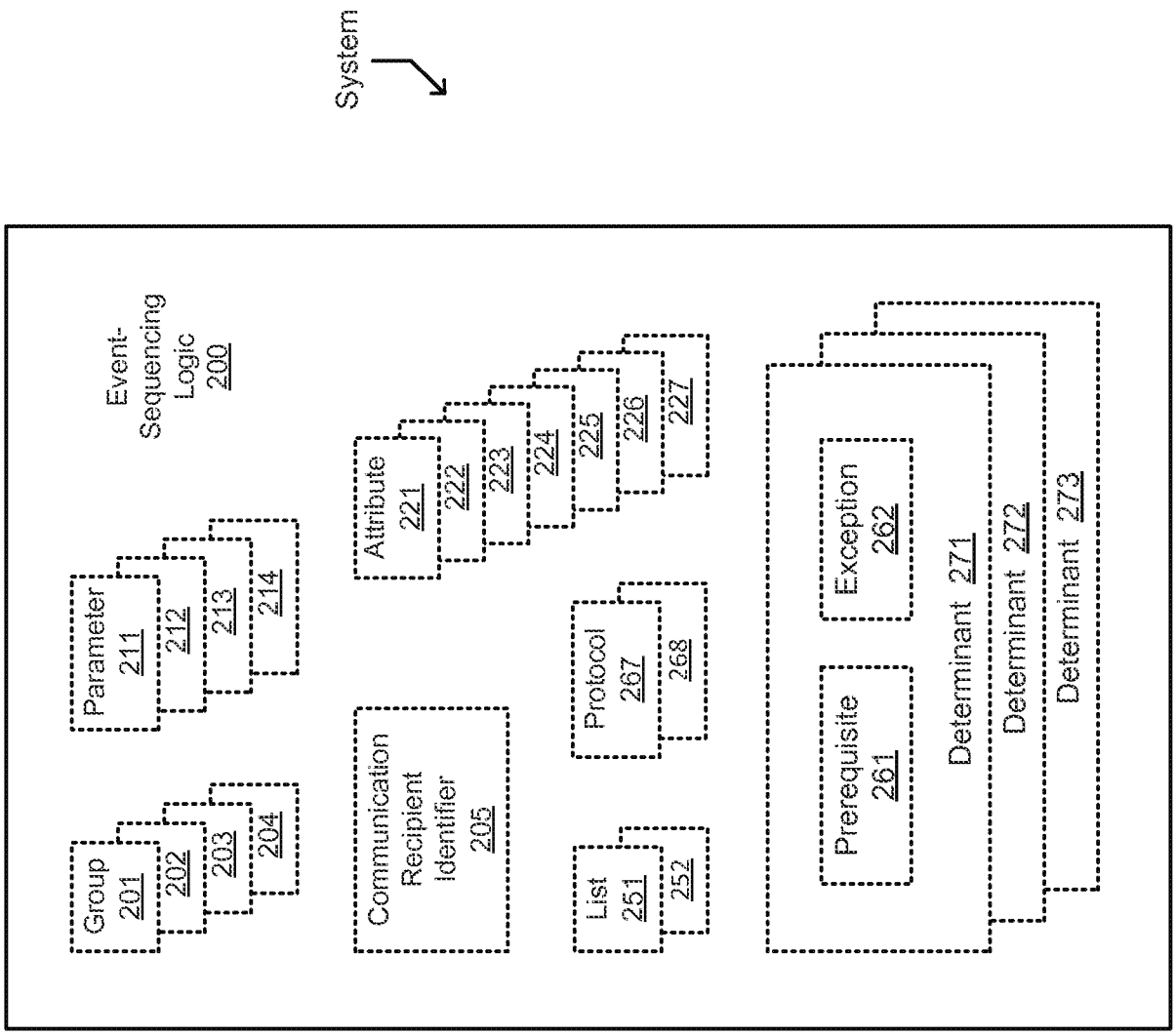

System
Event-Sequencing Logic 200
Group 201
202
203
204
Parameter 211
212
213
214
Communication Recipient Identifier 205
Attribute 221
222
223
224
225
226
227
List 251
252
Protocol 267
268
Prerequisite 261
Exception 262
Determinant 271
Determinant 272
Determinant 273

FIG. 3

Fig. 3-A	Fig. 3-B	Fig. 3-C
Fig. 3-D	Fig. 3-E	Fig. 3-F
Fig. 3-G	Fig. 3-H	Fig. 3-I
Fig. 3-J	Fig. 3-K	Fig. 3-L
Fig. 3-M	Fig. 3-N	Fig. 3-O

Fig. 3-A

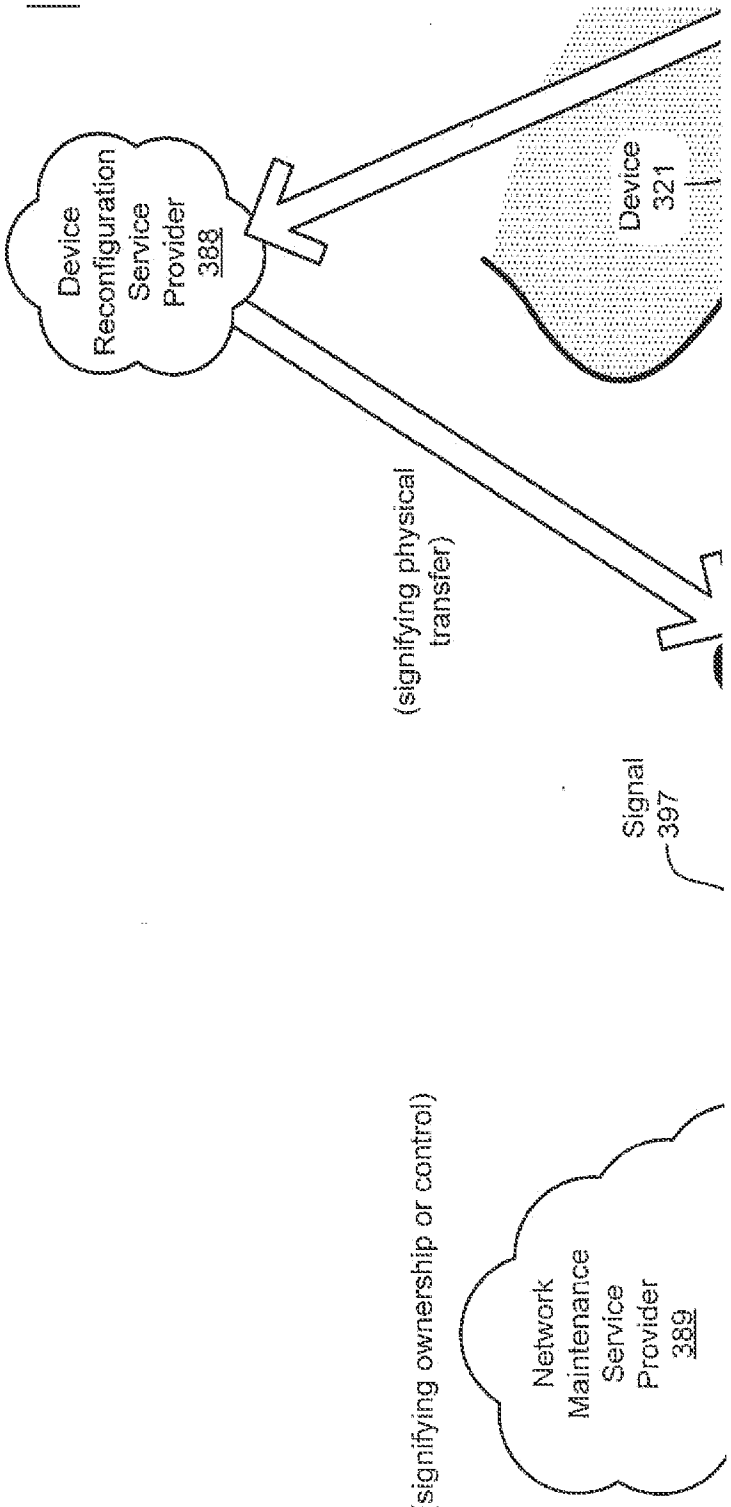

Device Reconfiguration Service Provider 388
Device 321
(signifying physical transfer)
Signal 397
Network Maintenance Service Provider 389
(signifying ownership or control)

Fig. 3-B

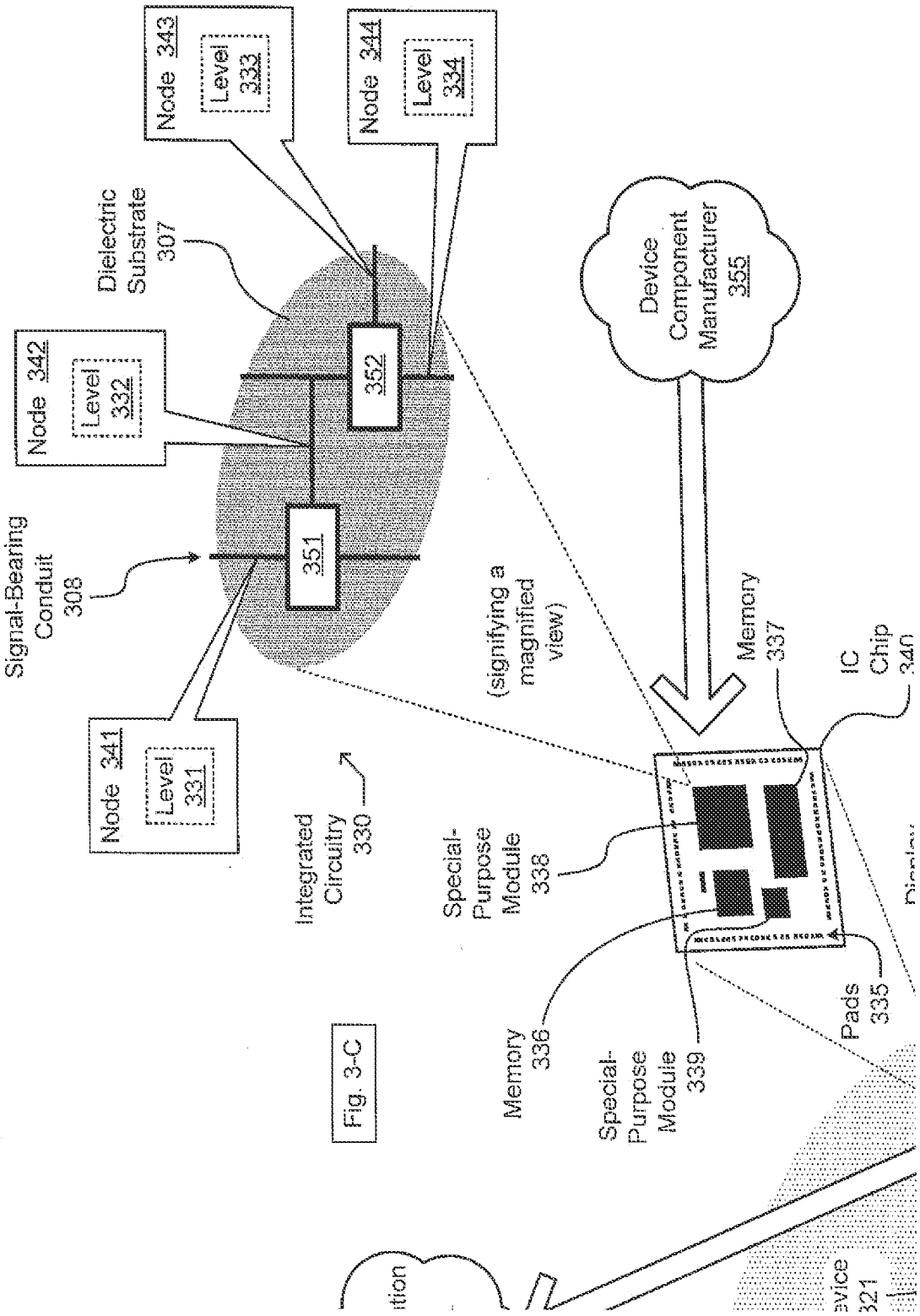

Node 343
Level 333
Node 344
Level 334
Dielectric Substrate 307
Node 342
Level 332
352
Device Component Manufacturer 355
Signal-Bearing Conduit 308
351
(signifying a magnified view)
Memory 337
IC Chip 340
Node 341
Level 331
Integrated Circuitry 330
Special-Purpose Module 338
Memory 336
Special-Purpose Module 339
Pads 335

Fig. 3-C

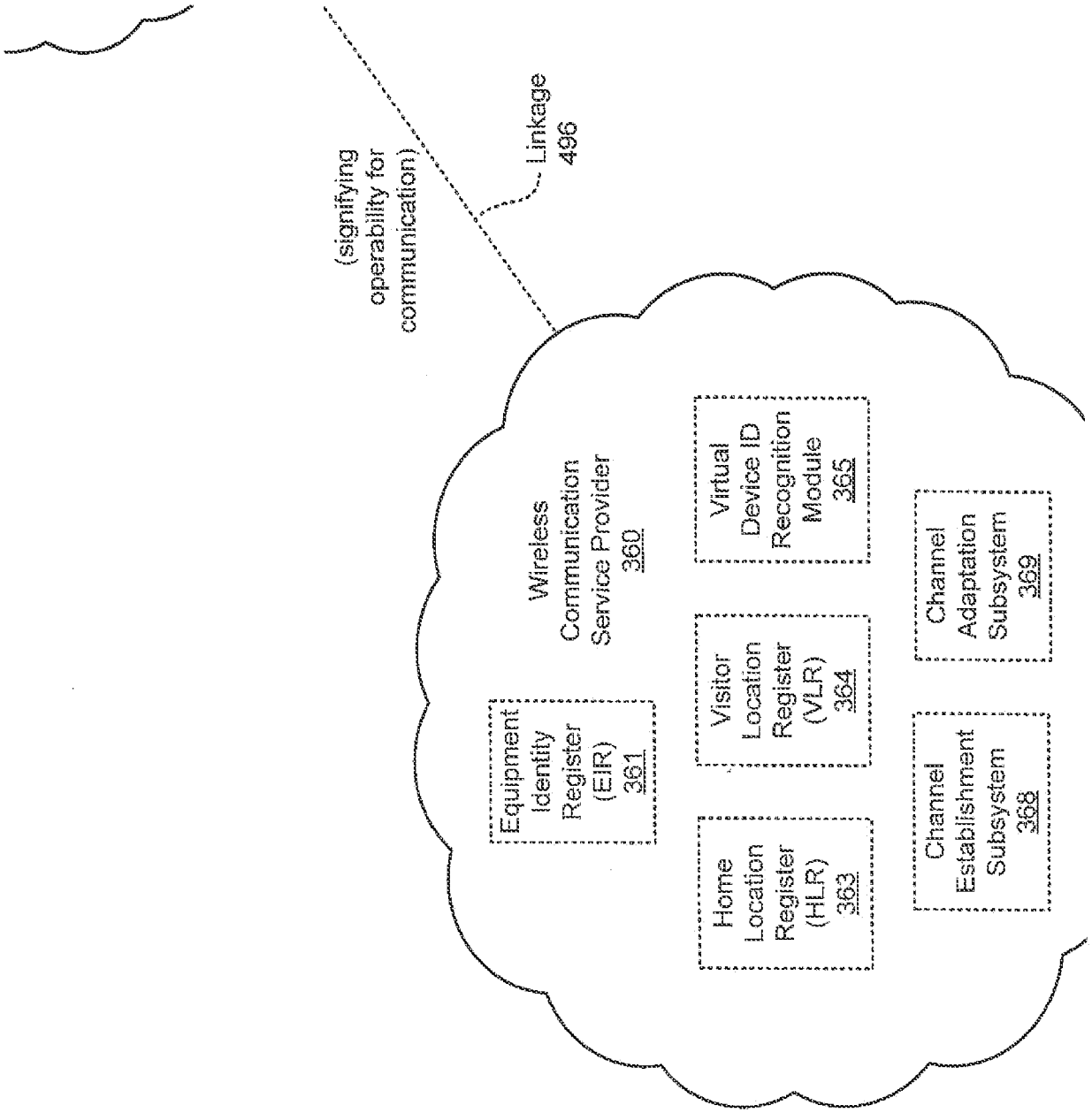

(signifying operability for communication)
Linkage 496
Wireless Communication Service Provider 360
Equipment Identity Register (EIR) 361
Home Location Register (HLR) 363
Visitor Location Register (VLR) 364
Virtual Device ID Recognition Module 365
Channel Establishment Subsystem 368
Channel Adaptation Subsystem 369

Fig. 3-D

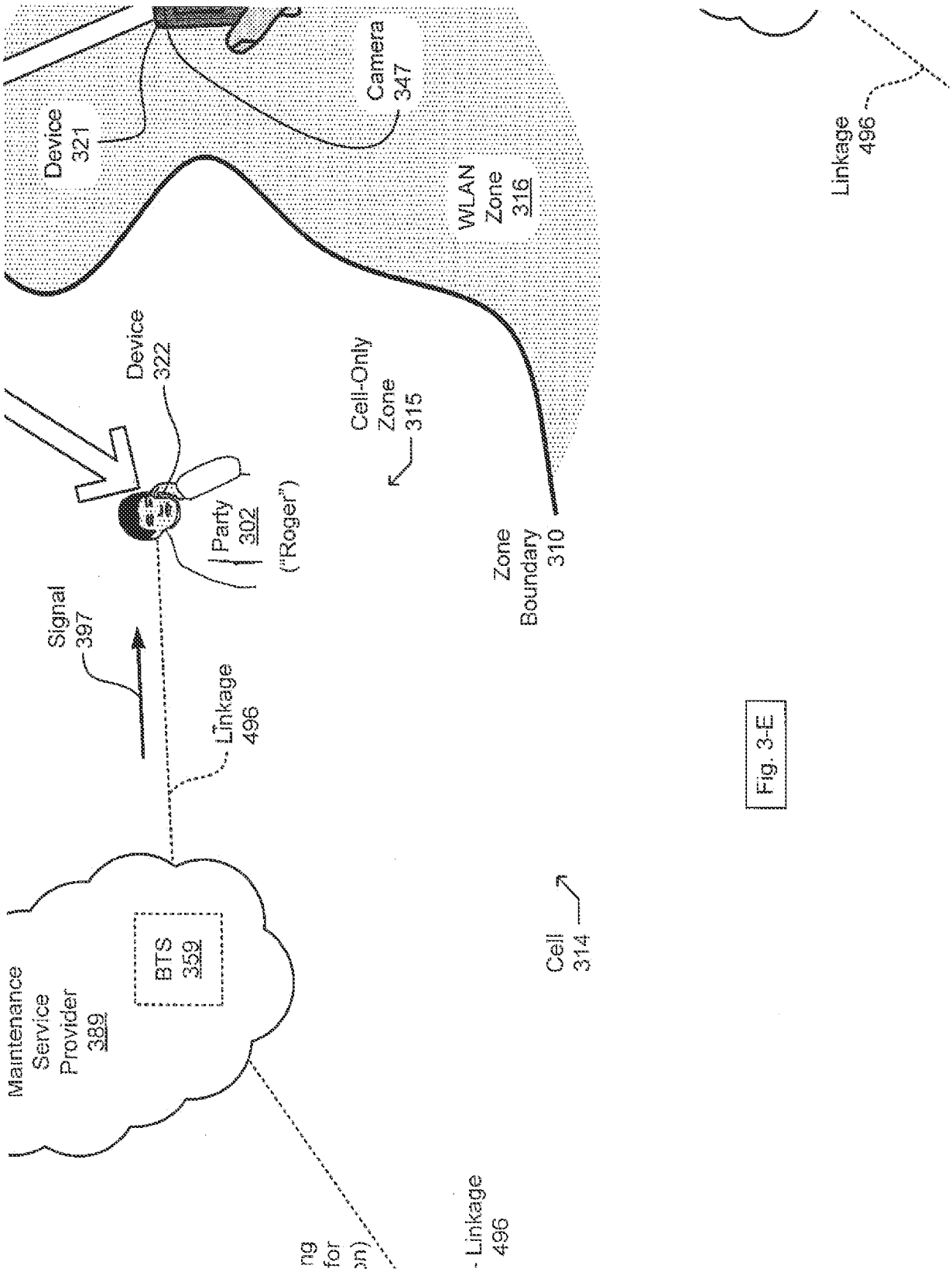

Device 321
Camera 347
WLAN Zone 316
Device 322
Cell-Only Zone 315
Party 302
("Roger")
Zone Boundary 310
Signal 397
Linkage 496
Maintenance Service Provider 389
BTS 359
Cell 314
Linkage 496
Linkage 496

Fig. 3-E

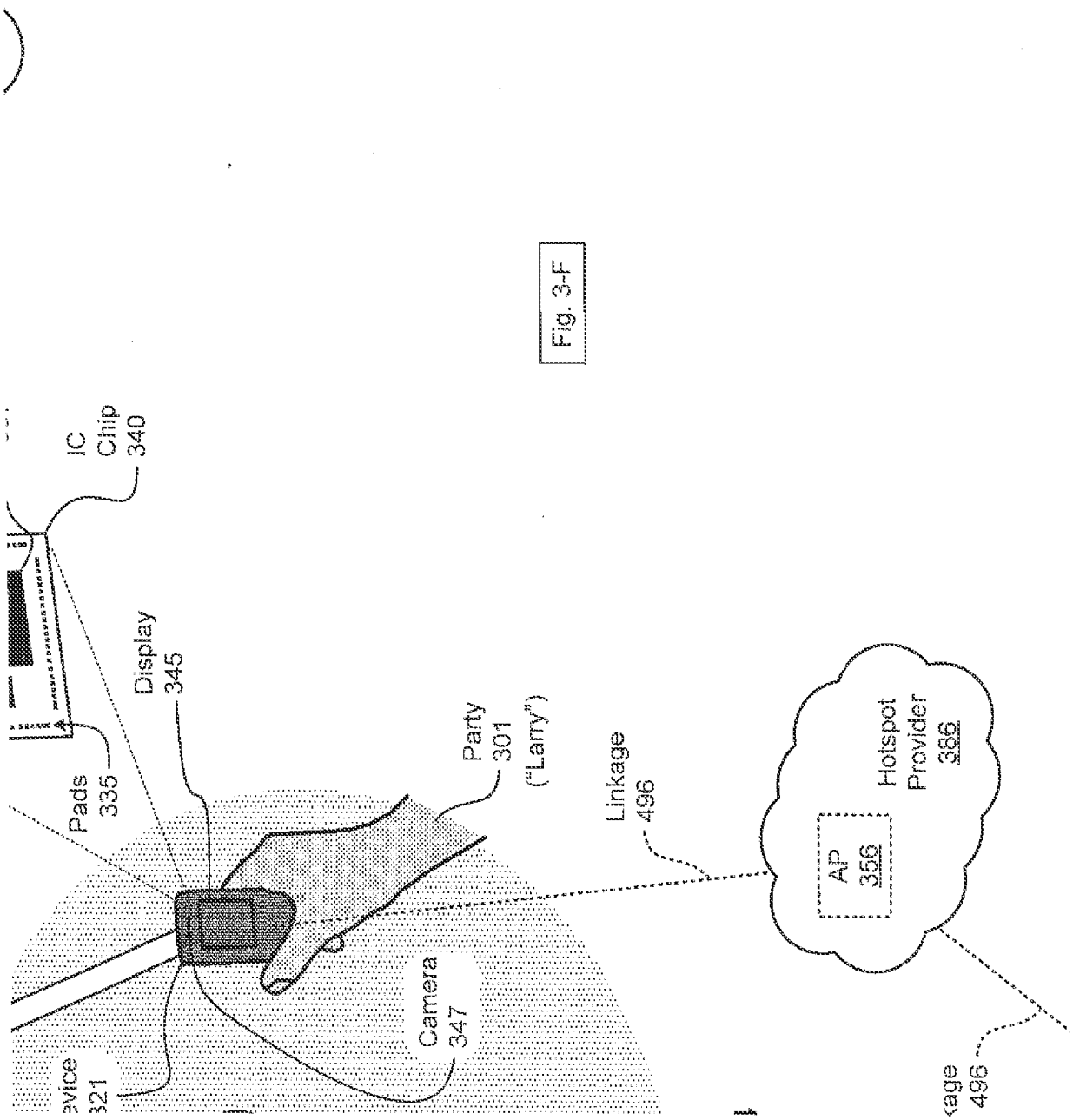

IC Chip 340
Display 345
Pads 335
Party 301 ("Larry")
Linkage 496
AP 356
Hotspot Provider 386
Camera 347
evice 321
rage 496

Fig. 3-F

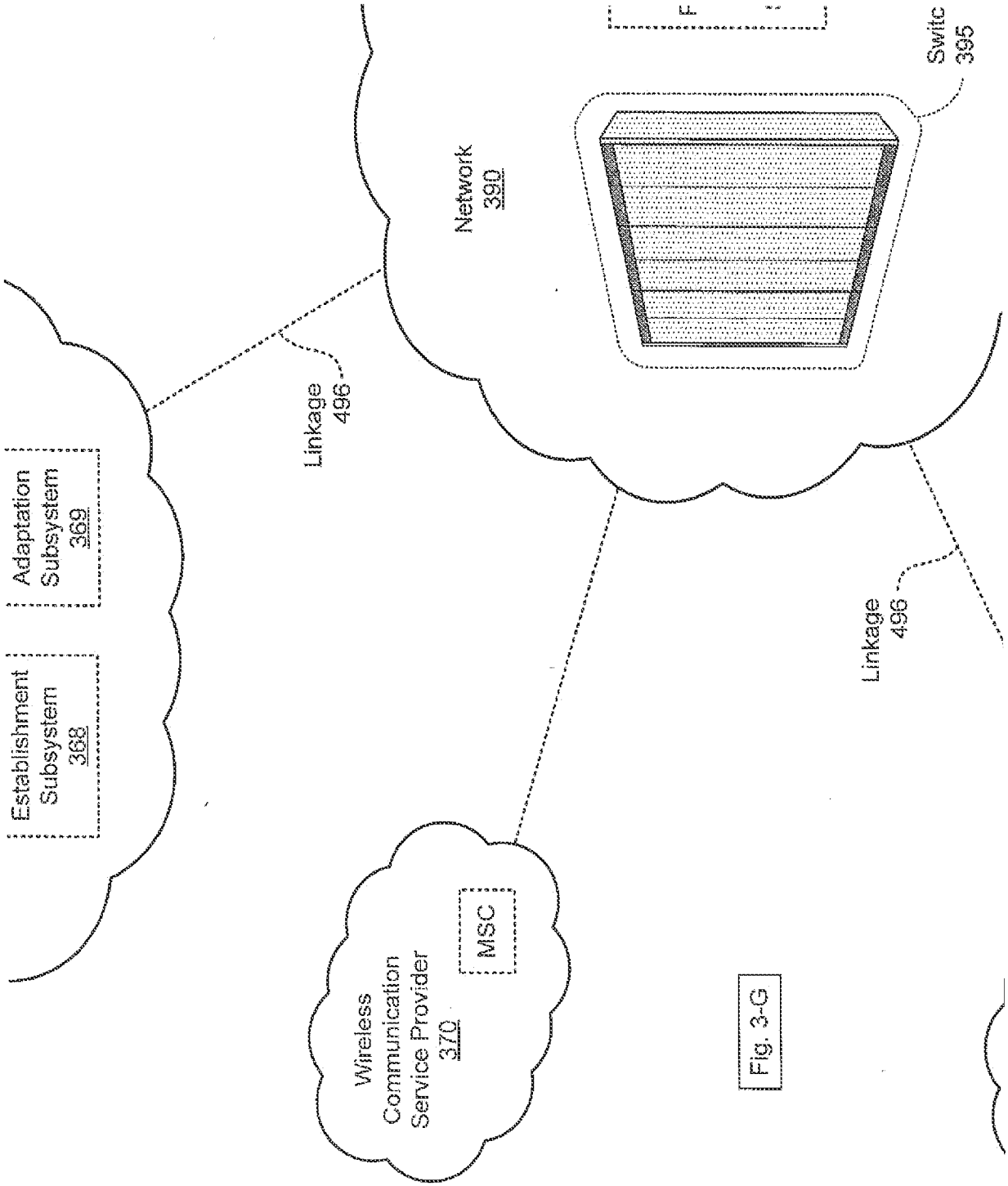

Establishment Subsystem 368
Adaptation Subsystem 369
Linkage 496
Network 390
Switc 395
Linkage 496
Wireless Communication Service Provider 370
MSC

Fig. 3-G

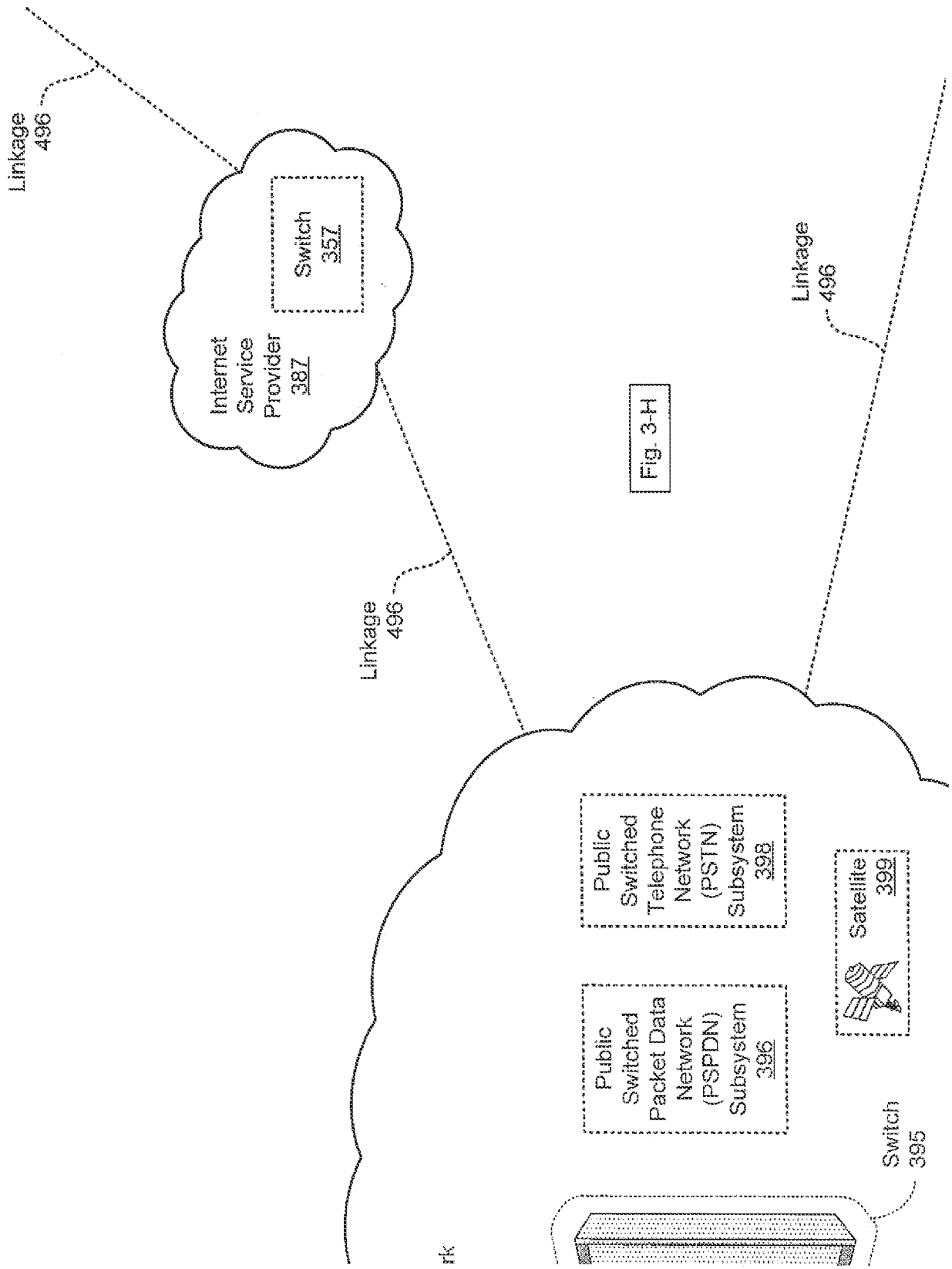

Linkage 496
Internet Service Provider 387
Switch 357
Linkage 496
Linkage 496
Public Switched Telephone Network (PSTN) Subsystem 398
Satellite 399
Public Switched Packet Data Network (PSPDN) Subsystem 396
Switch 395
rk

Fig. 3-H

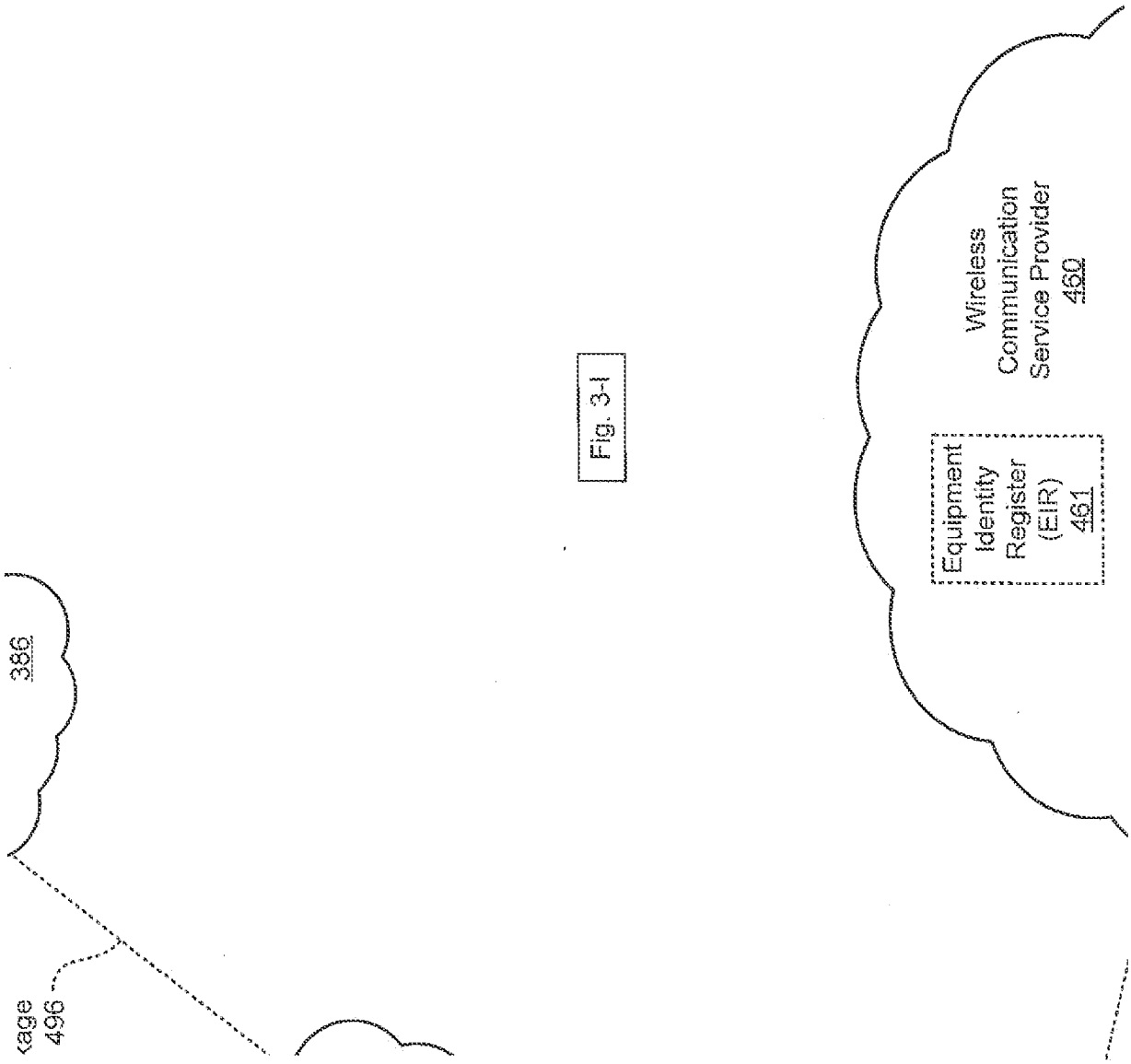

Wireless Communication Service Provider 460
Equipment Identity Register (EIR) 461
386
496

Fig. 3-I

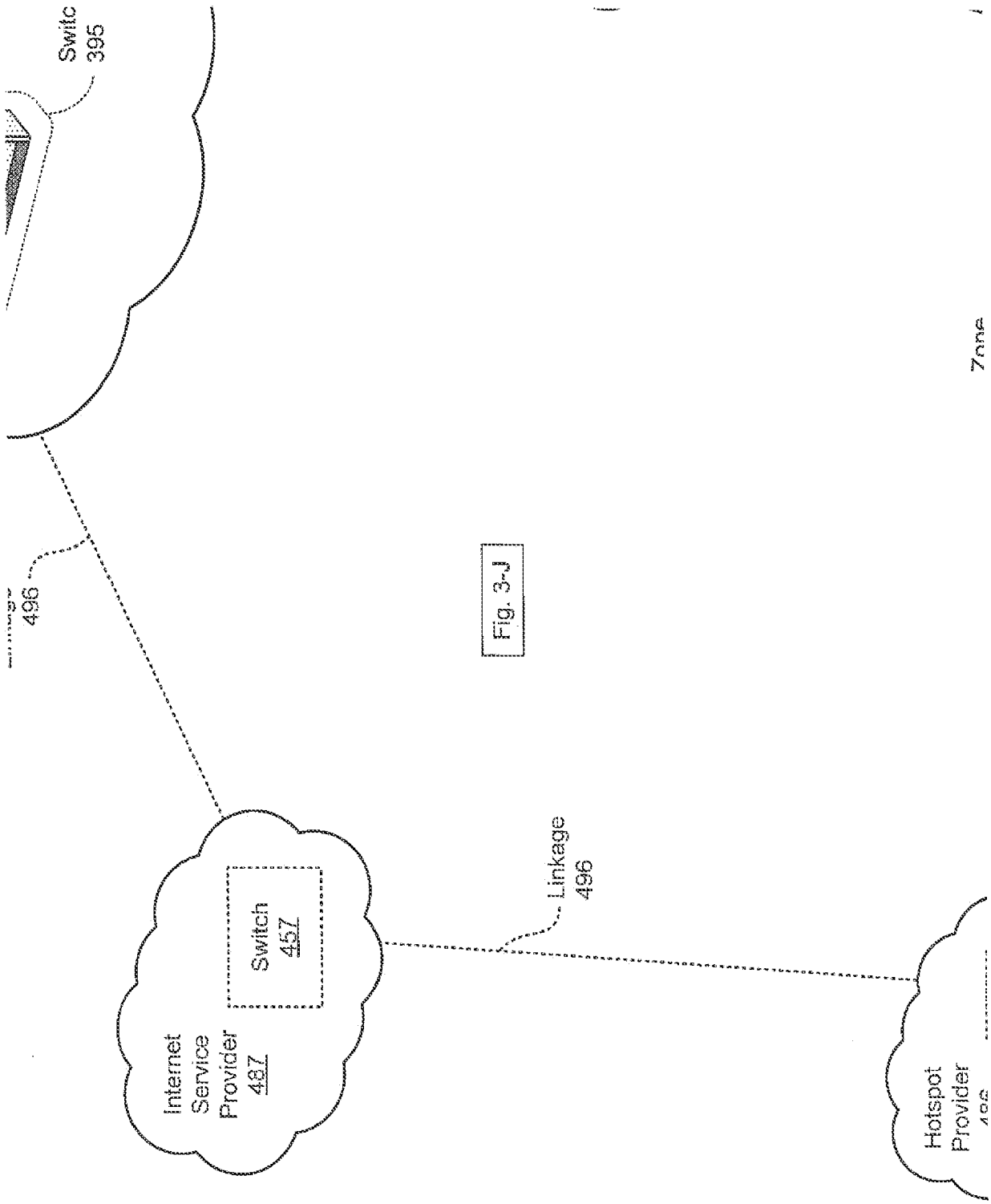

Switc
395
496
Internet
Service
Provider
487
Switch
457
Linkage
496
Hotspot
Provider

Fig. 3J

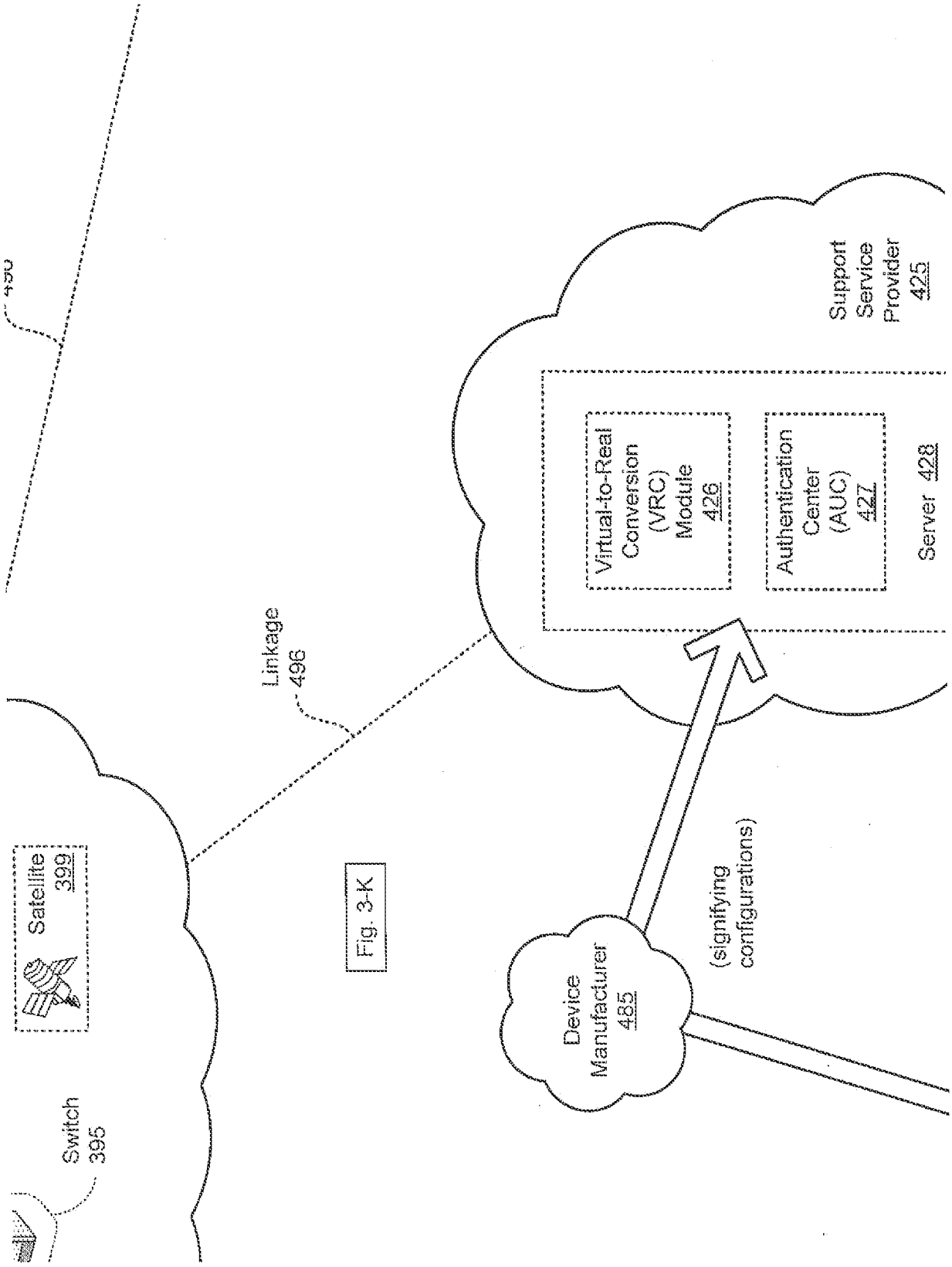

Switch
395
Satellite
399
Linkage
496
Support
Service
Provider
425
Virtual-to-Real
Conversion
(VRC)
Module
426
Authentication
Center
(AUC)
427
Server 428
Device
Manufacturer
485
(signifying
configurations)

Fig. 3-K

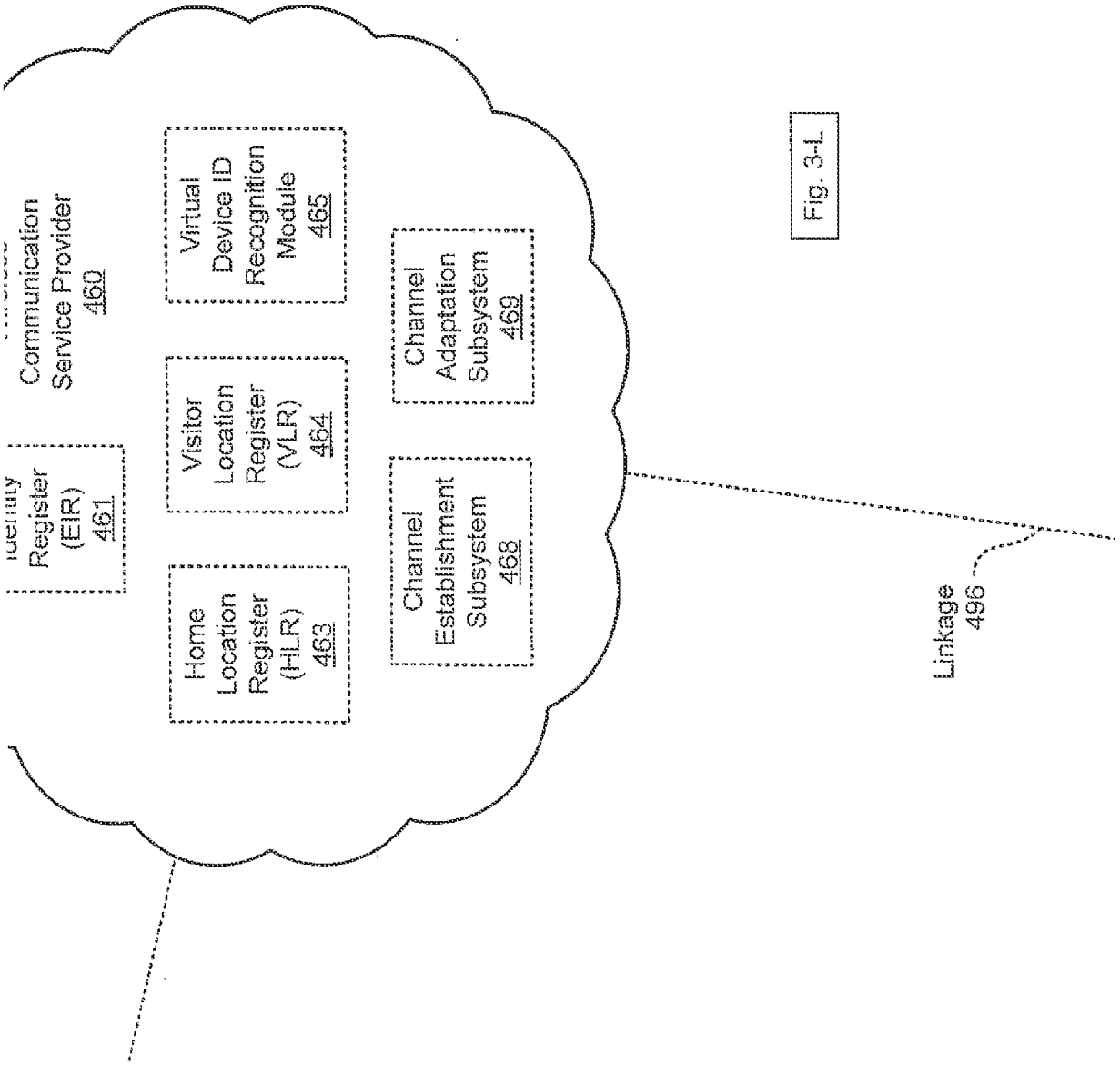

Communication Service Provider 460
Identity Register (EIR) 461
Home Location Register (HLR) 463
Visitor Location Register (VLR) 464
Virtual Device ID Recognition Module 465
Channel Establishment Subsystem 468
Channel Adaptation Subsystem 469
Linkage 496

Fig. 3-L

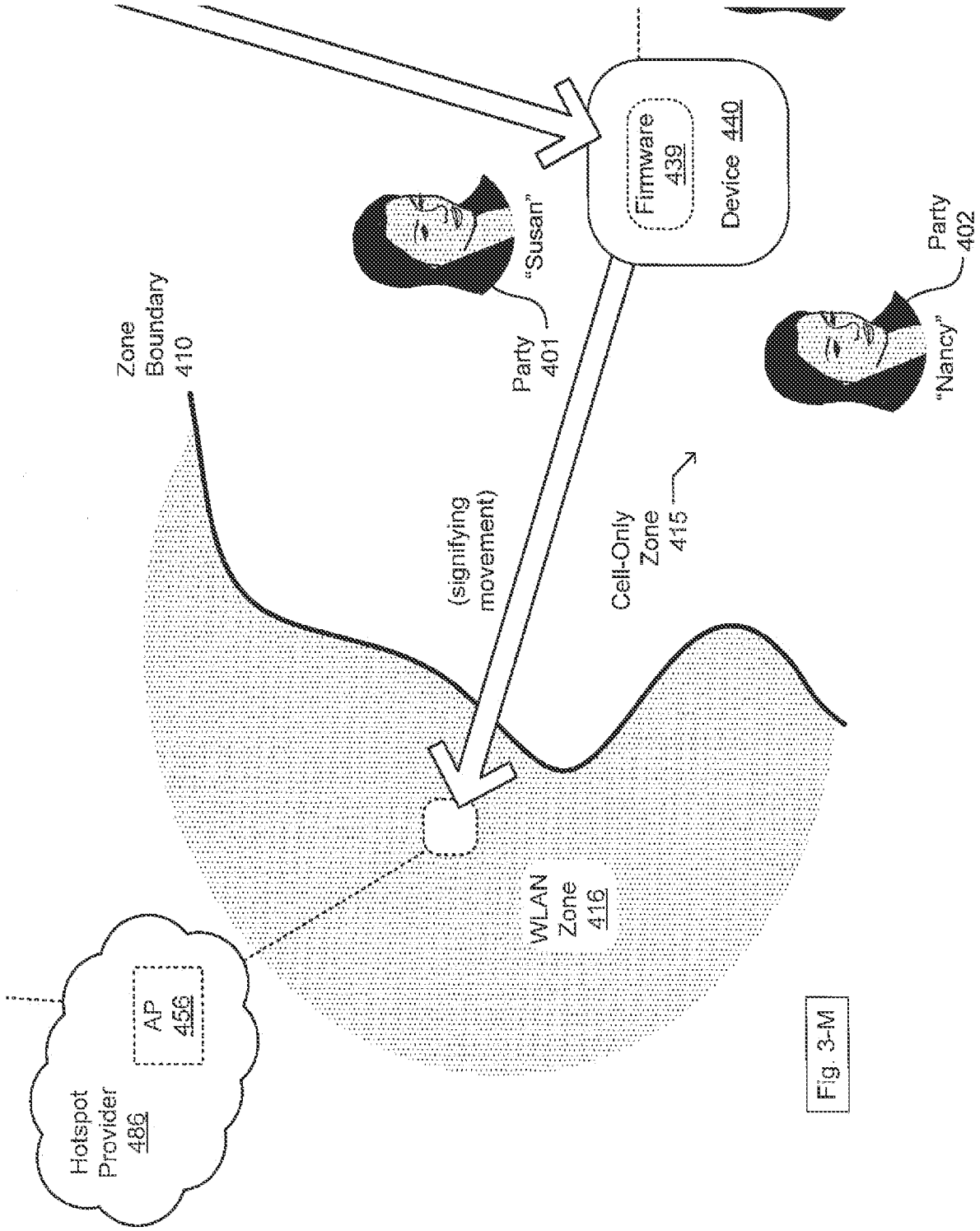

Zone Boundary 410
Party 401
"Susan"
Firmware 439
Device 440
Party 402
"Nancy"
(signifying movement)
Cell-Only Zone 415
WLAN Zone 416
Hotspot Provider 486
AP 456

Fig. 3-M

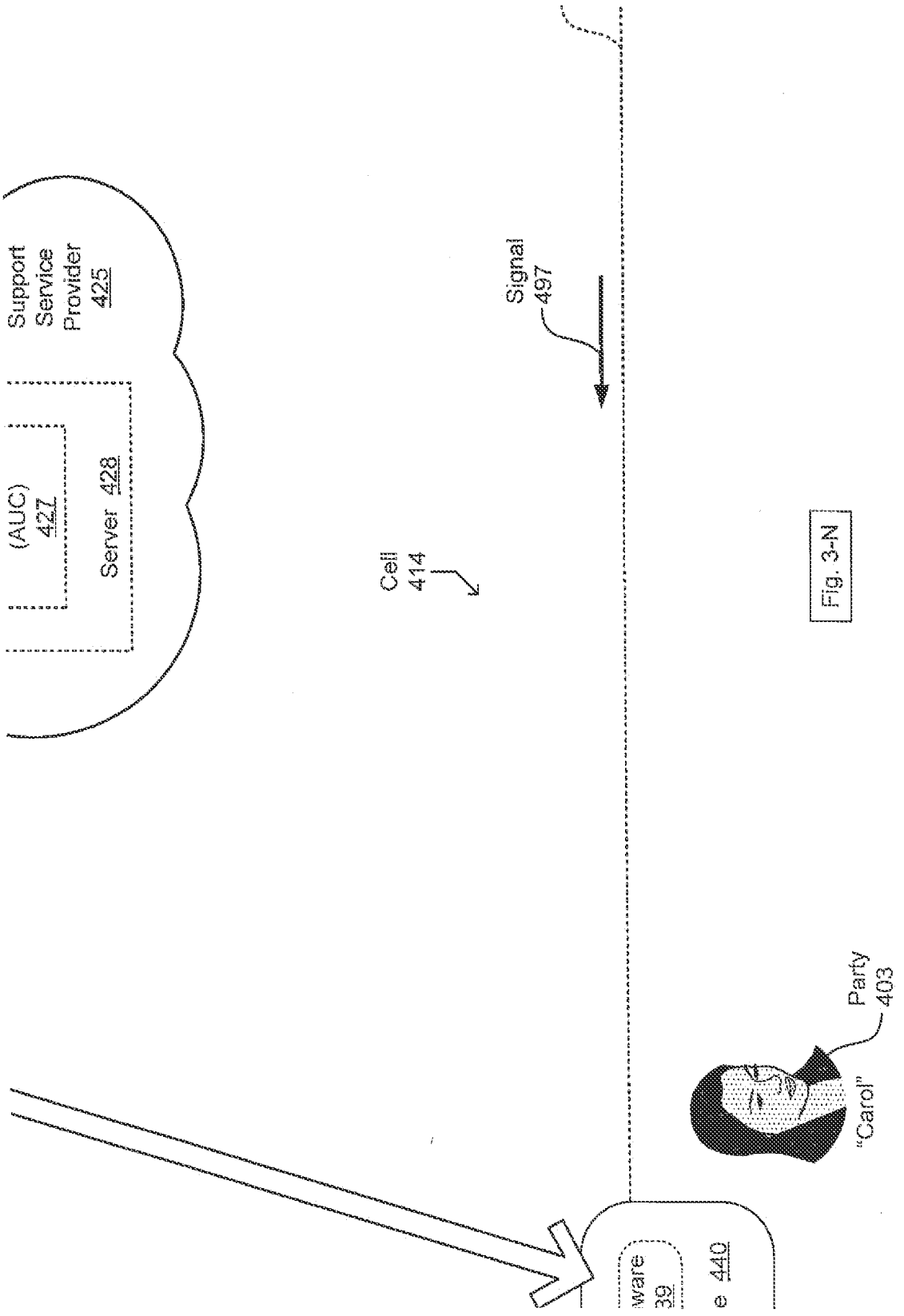

Support Service Provider 425
(AUC) 427
Server 428
Signal 497
Cell 414
Party 403
"Carol"
ware 39
e 440

Fig. 3-N

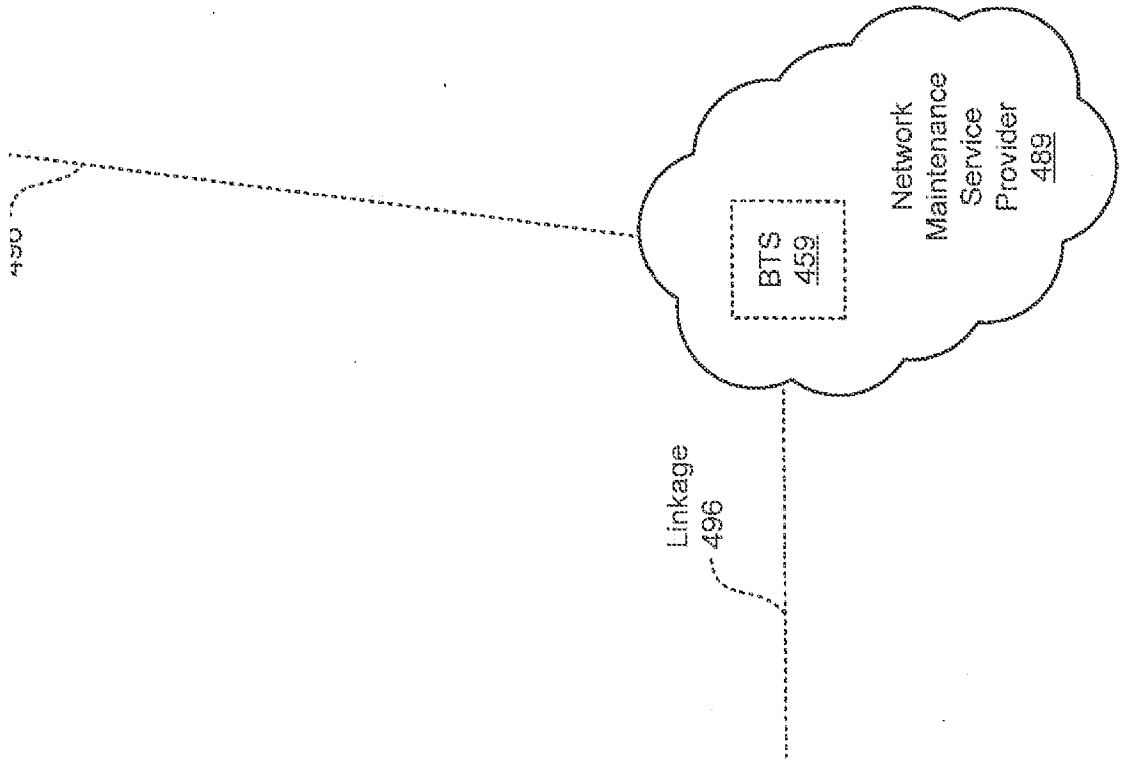

Network Maintenance Service Provider 489
BTS 459
Linkage 496

Fig. 3-O

FIG. 4

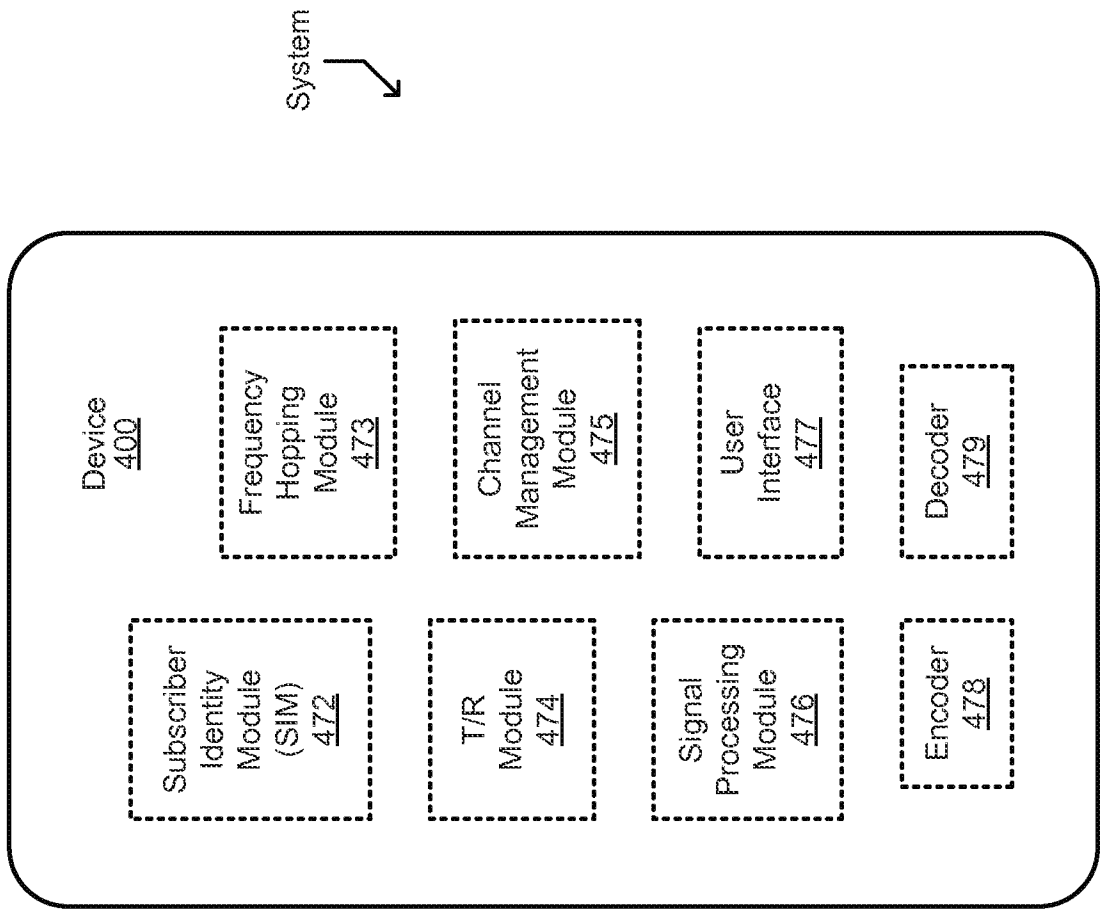

System
Device
400
Frequency Hopping Module
473
Channel Management Module
475
User Interface
477
Decoder
479
Subscriber Identity Module (SIM)
472
T/R Module
474
Signal Processing Module
476
Encoder
478

FIG. 5

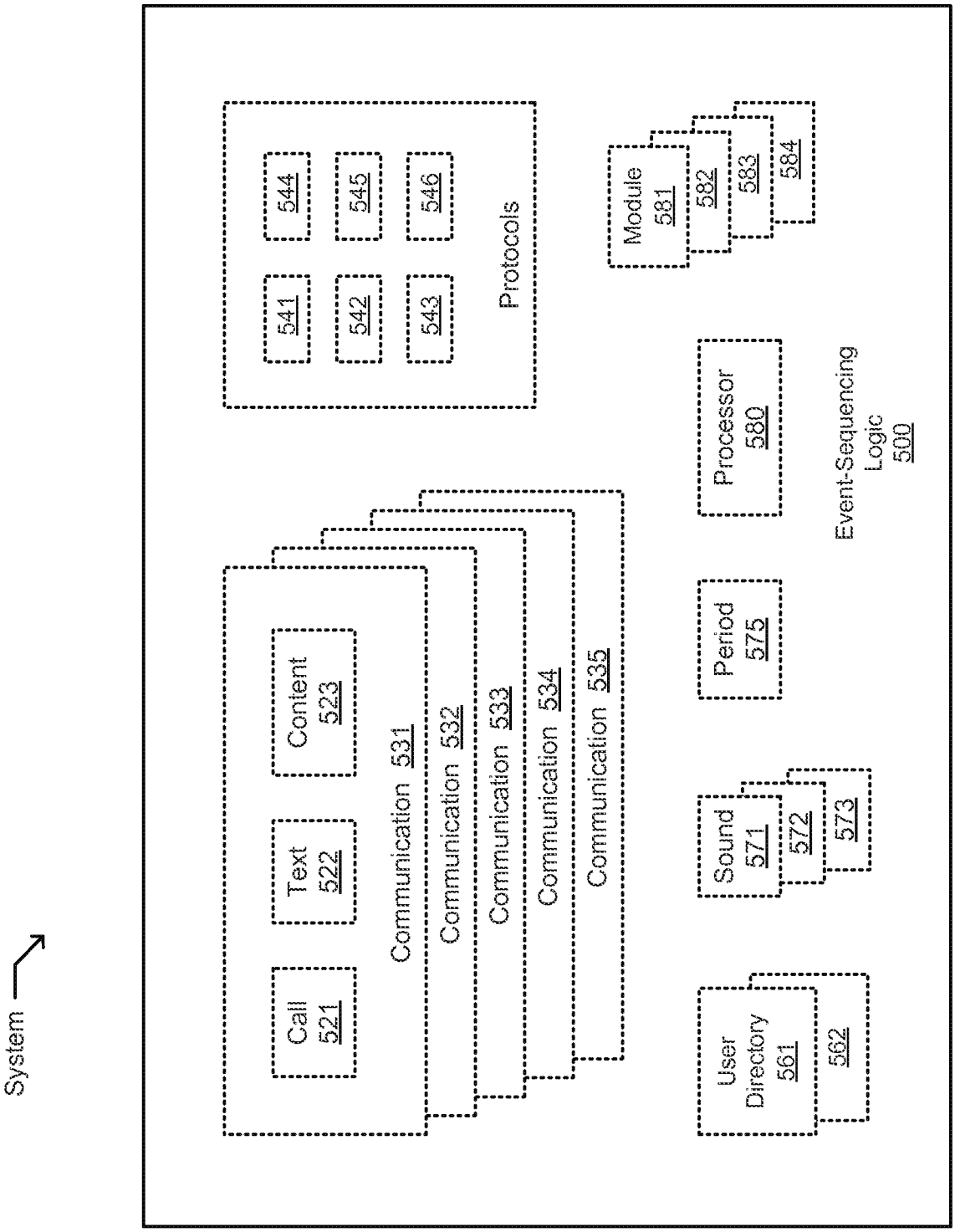

System
Call 521
Text 522
Content 523
Communication 531
Communication 532
Communication 533
Communication 534
Communication 535
541
542
543
544
545
546
Protocols
Module 581
582
583
584
Processor 580
Event-Sequencing Logic 500
Period 575
Sound 571
572
573
User Directory 561
562

FIG. 6

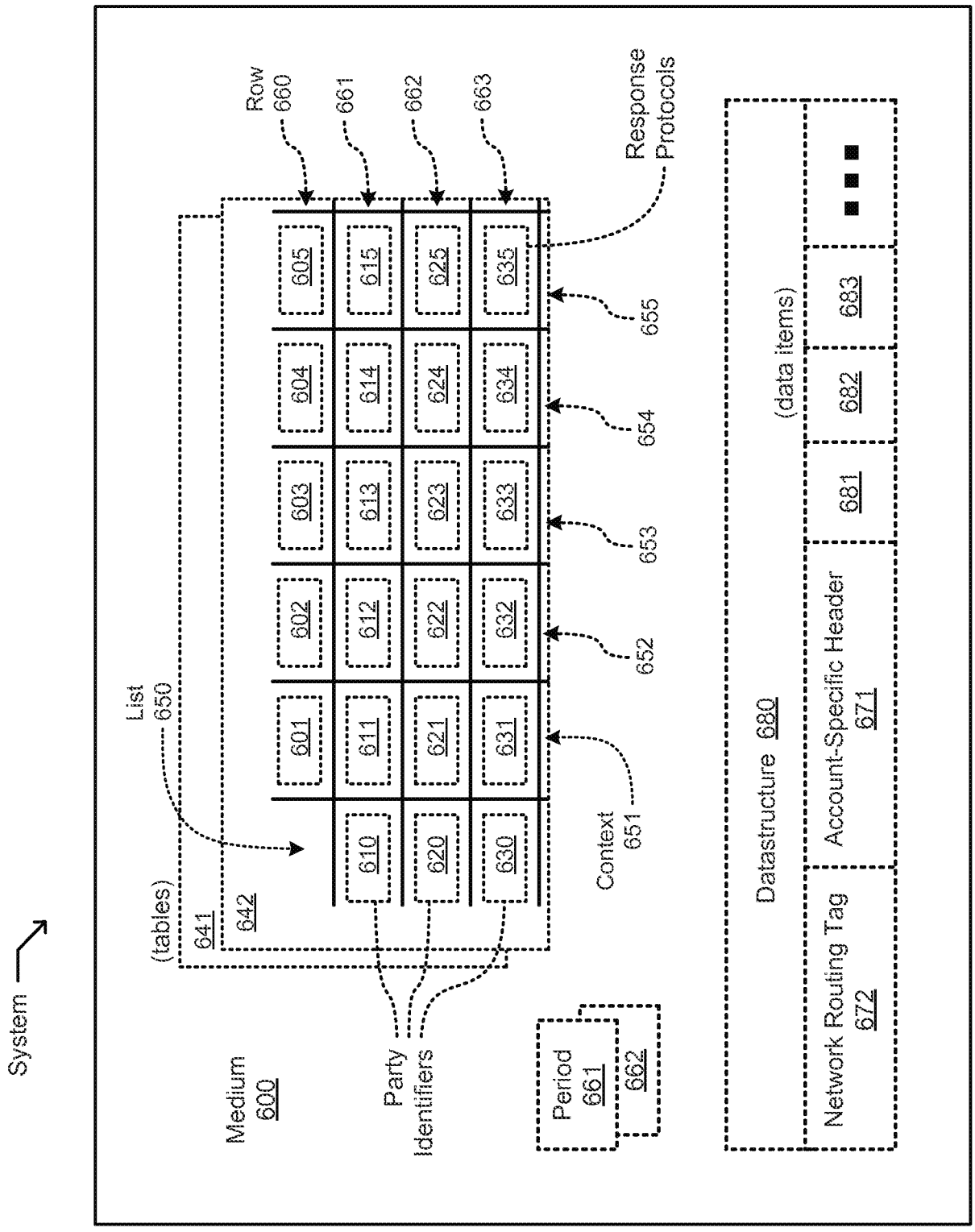

System
Medium 600
List (tables) 641
642
Row 660
661
662
663
Response Protocols
655
654
653
652
Context 651
Party Identifiers
Period 661
662
Datastructure 680
(data items)
Network Routing Tag 672
Account-Specific Header 671
681
682
683

FIG. 7

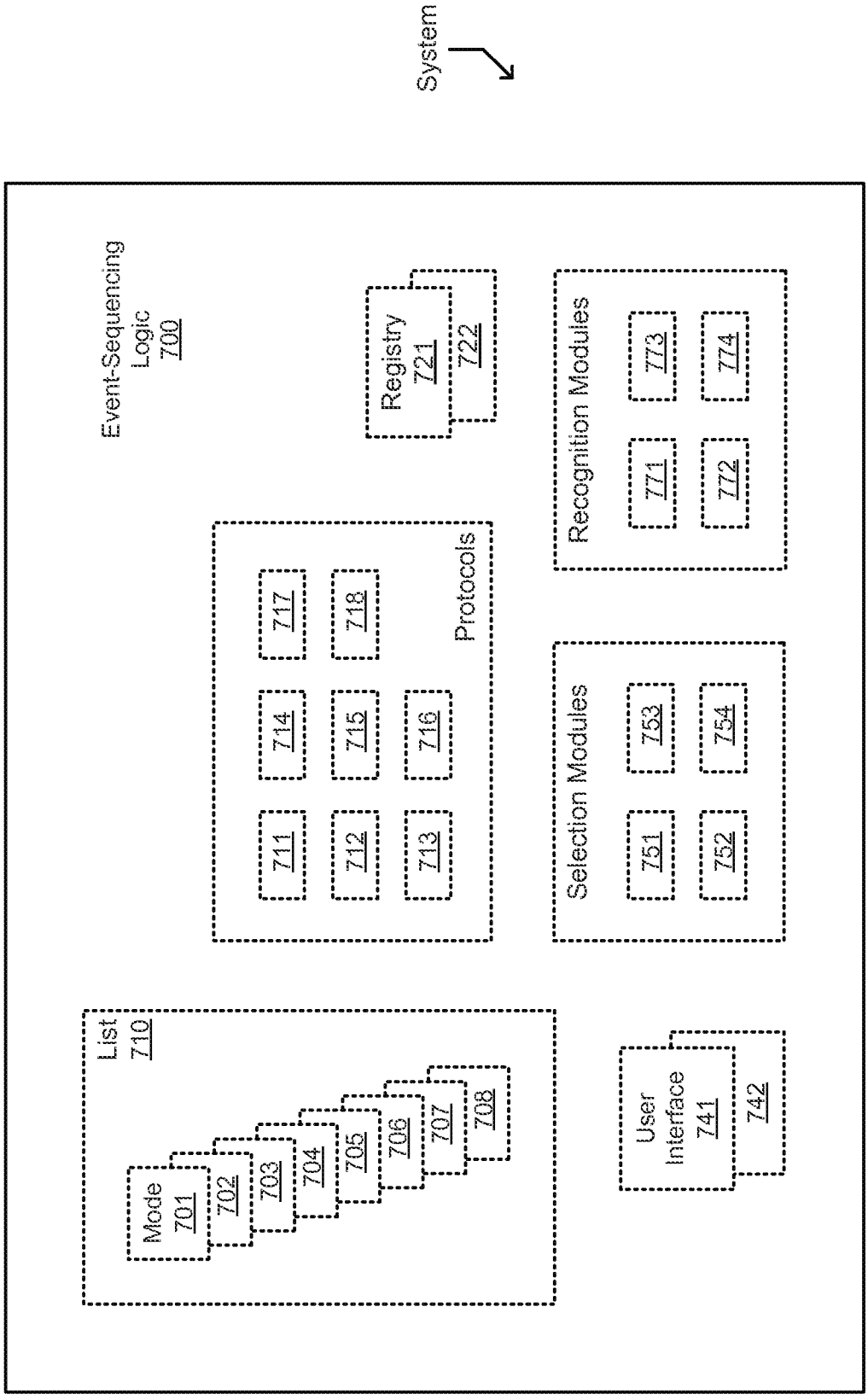

System
Event-Sequencing Logic 700
Registry 721 722
Recognition Modules 771 772 773 774
Protocols 711 712 713 714 715 716 717 718
Selection Modules 751 752 753 754
List 710
Mode 701 702 703 704 705 706 707 708
User Interface 741 742

FIG. 8

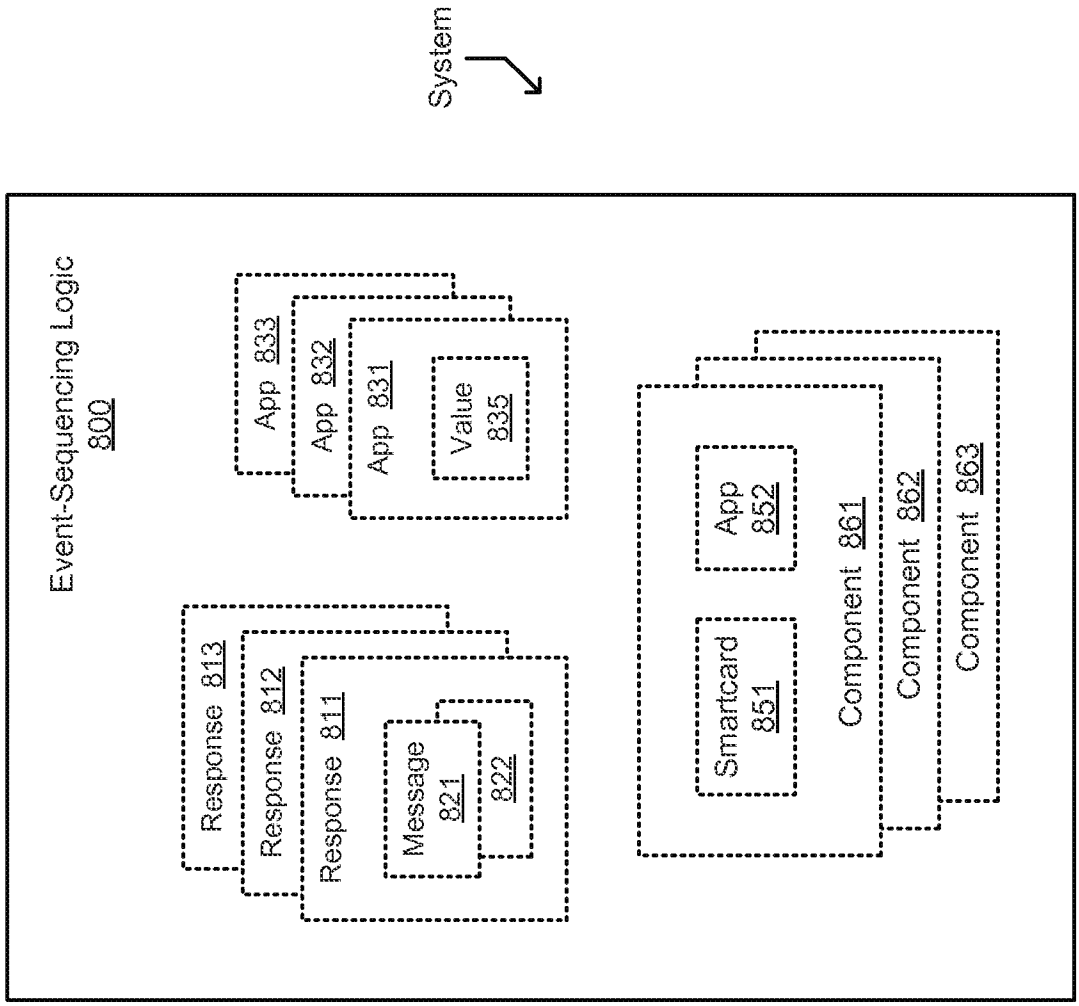

System
Event-Sequencing Logic
800
Response 813
Response 812
Response 811
Message
821
822
App 833
App 832
App 831
Value
835
Smartcard
851
App
852
Component 861
Component 862
Component 863

FIG. 9

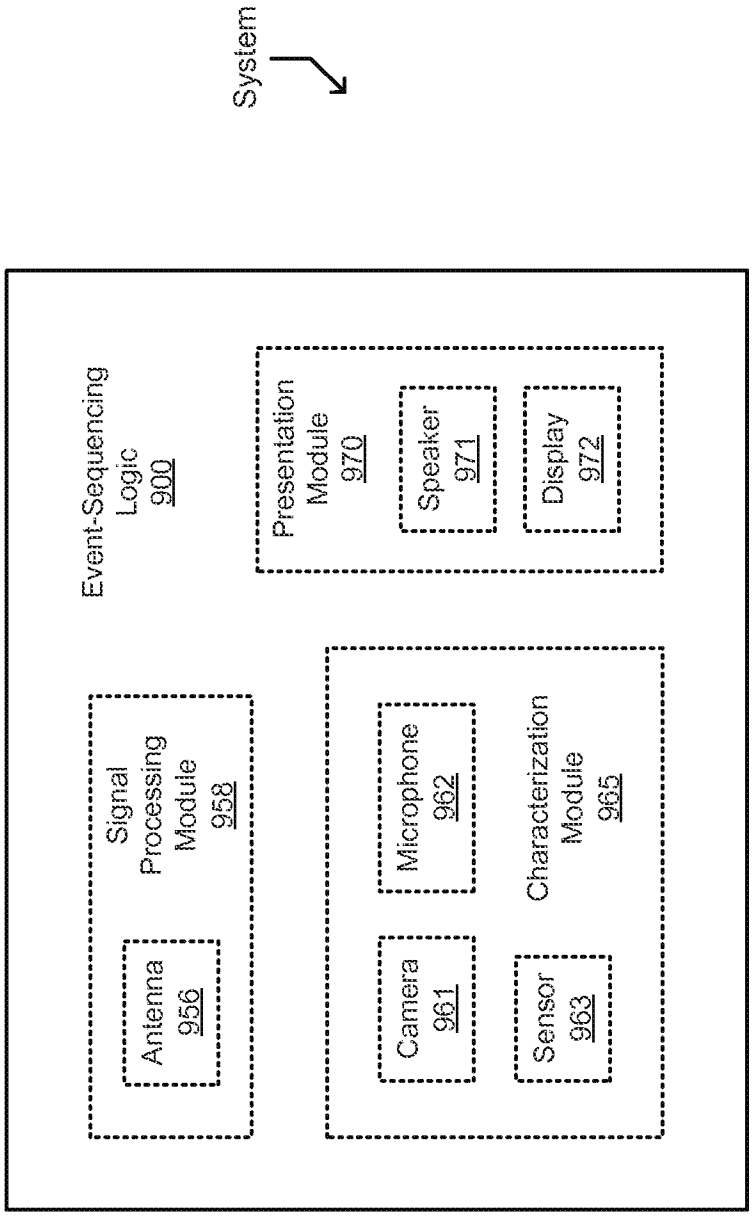
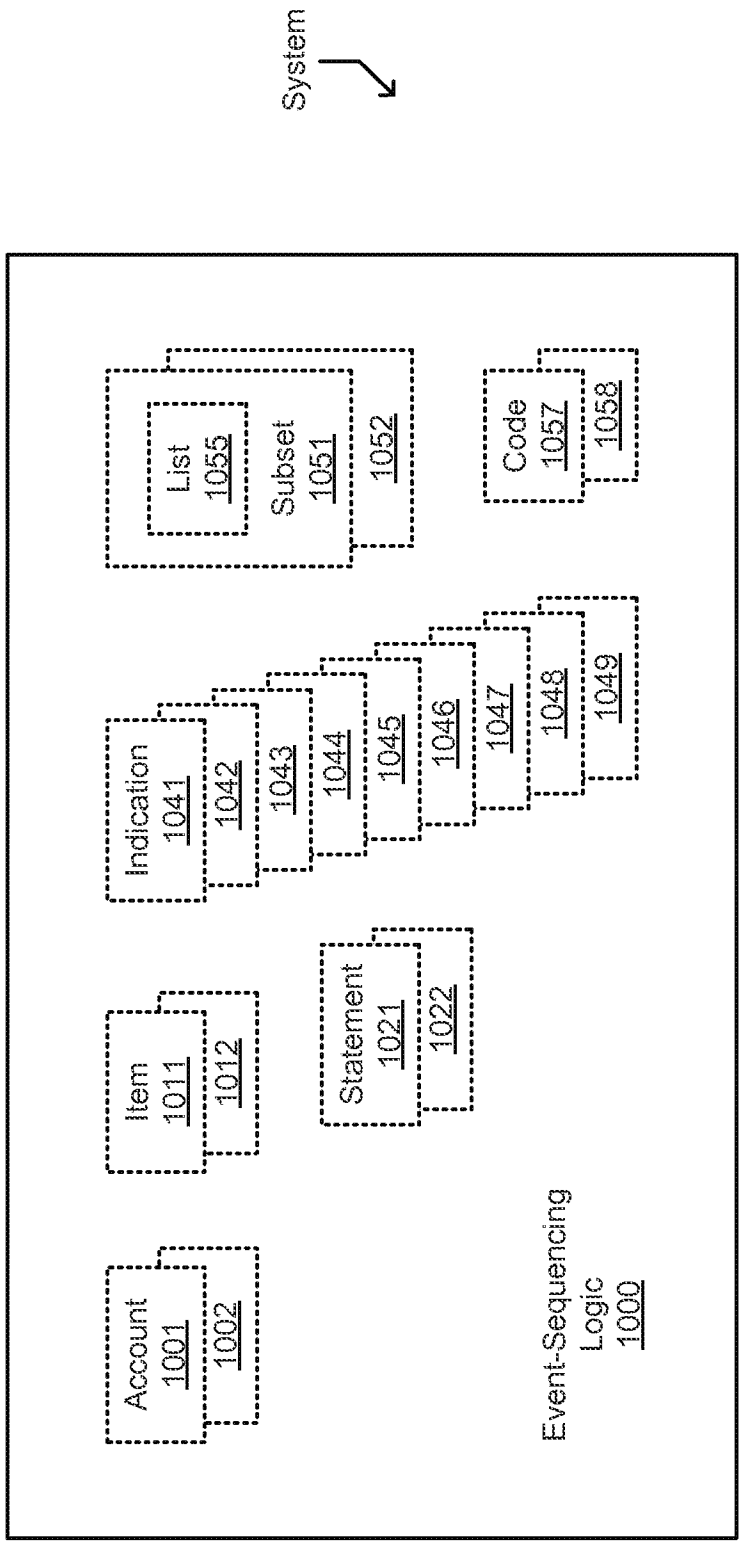

System
Event-Sequencing Logic 900
Signal Processing Module 958
Antenna 956
Presentation Module 970
Speaker 971
Display 972
Microphone 962
Camera 961
Characterization Module 965
Sensor 963

FIG. 10


System
Event-Sequencing Logic 1000
Account 1001
1002
Item 1011
1012
Statement 1021
1022
Indication 1041
1042
1043
1044
1045
1046
1047
1048
1049
Subset 1051
List 1055
1052
Code 1057
1058

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/058248

A. CLASSIFICATION OF SUBJECT MATTER

H04W 8/18(2009.01)i, H04W 8/28(2009.01)i, H04W 24/04(2009.01)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)
H04W 8/18; H04W 24/00; H04W 4/12; H04L 29/06; G06F 15/167; G06F 7/04; H04W 8/28; H04W 24/04

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
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: map, recipient, party, identifier, decision

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2013-0237249 A1 (WILLIAM M. STEWART) 12 September 2013 See paragraphs [0023]-[0029]; and figure 11.	1-19
A	US 2010-0009703 A1 (JULIEN SORNAY) 14 January 2010 See paragraphs [0006]-[0010]; and figure 8.	1-19
A	US 7010578 B1 (DANIEL M. LEWIN et al.) 07 March 2006 See column 1, lines 61-67; column 2, lines 1-12; and figure 3.	1-19
A	US 2009-0282468 A1 (JASMINDER BANGA et al.) 12 November 2009 See paragraphs [0005]-[0012]; and figure 10.	1-19
A	US 8316237 B1 (DAVID P. FELSHER et al.) 20 November 2012 See column 2, lines 8-17; column 15, lines 6-24; and figure 7.	1-19

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 January 2015 (08.01.2015)	**09 January 2015 (09.01.2015)**

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/US2014/058248

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2013-0237249 A1	12/09/2013	None	
US 2010-0009703 A1	14/01/2010	WO 2010-009055 A1	21/01/2010
US 7010578 B1	07/03/2006	None	
US 2009-0282468 A1	12/11/2009	CA 2674320 A1	17/07/2008
		EP 2109968 A1	21/10/2009
		JP 2010-515977 A	13/05/2010
		KR 10-2009-0111821 A	27/10/2009
		TW 200838220 A	16/09/2008
		WO 2008-086190 A1	17/07/2008
US 8316237 B1	20/11/2012	US 7181017 B1	20/02/2007
		US 7869591 B1	11/01/2011