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(54) **NETWORK ASSISTED ANDSF POLICY UPDATING**

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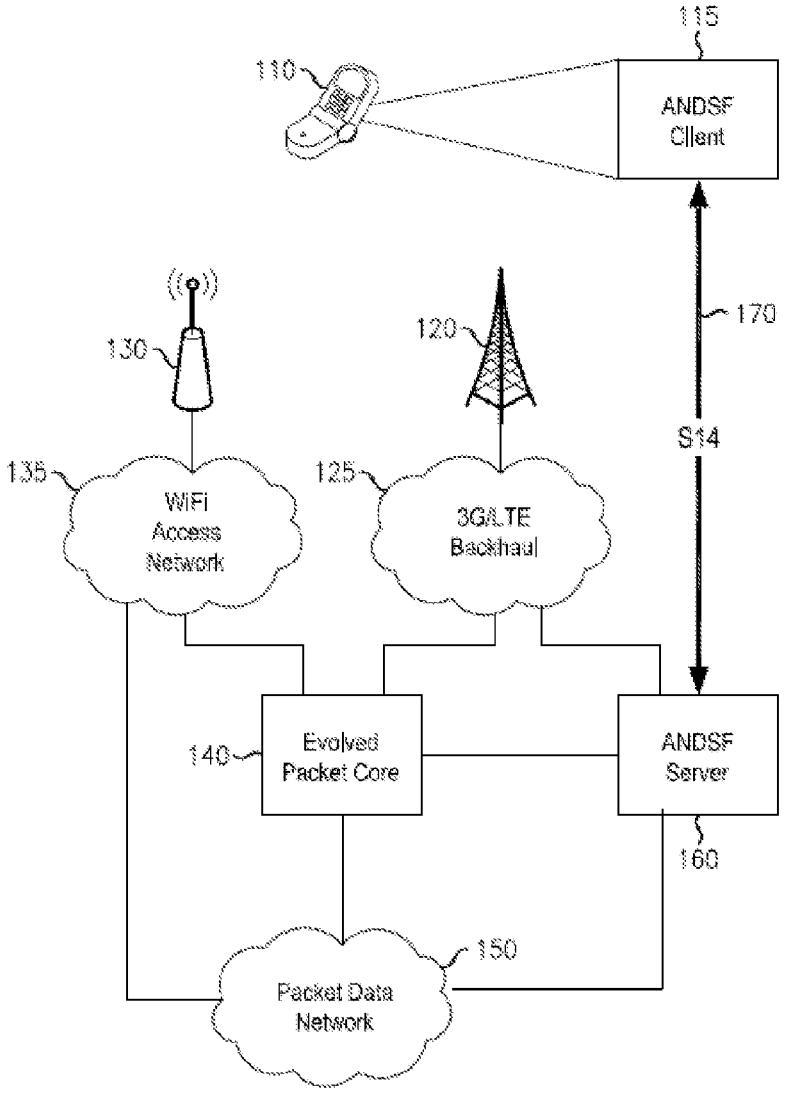
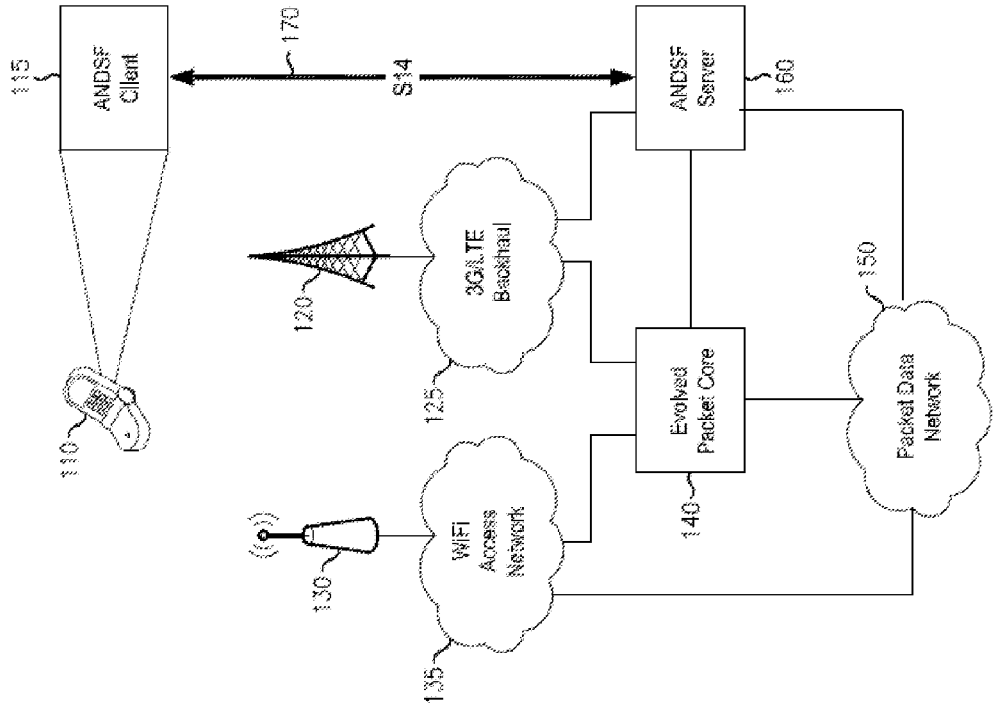
(57) **ABSTRACT**

Various methods and apparatuses are provided to address the need for reduced UE location reporting. In one method, an access network discovery and selection function (ANDSF) server receives (**401**) location information for a UE from a Long Term Evolution (LTE) Evolved Packet Core (EPC) function. The location information is received from the LTE EPC function instead of being received from the UE. The ANDSF server then generates (**402**) a policy based on the location information received for the UE and sends (**403**) the policy to the UE via a first access network. The policy includes an identification of an access point for use by the UE to access an access network different than the first access network.




115
ANDSF Client
170
S14
ANDSF Server
160
110
120
3G/LTE Backhaul
125
150
Evolved Packet Core
Packet Data Network
140
130
WiFi Access Network
135

100

FIG. 1

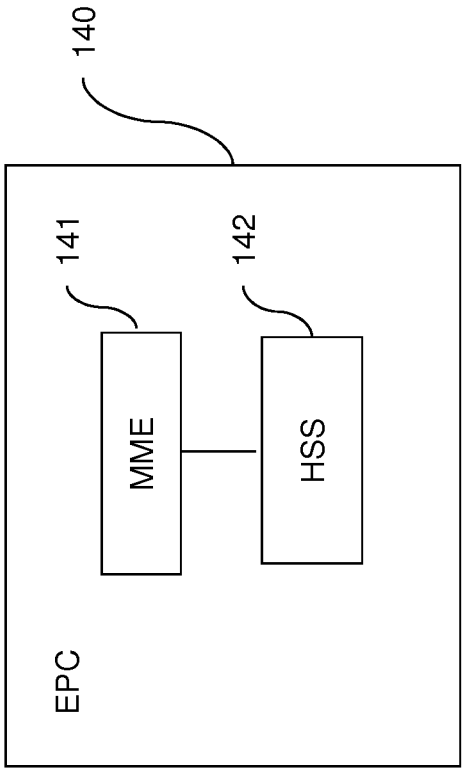


FIG. 2

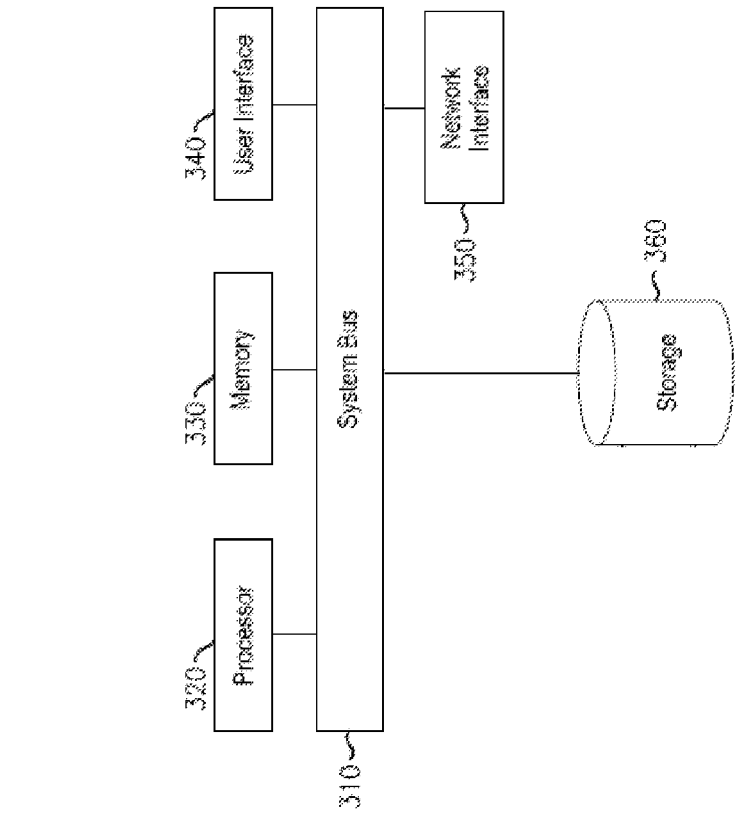

300
310
320
Processor
330
Memory
340
User Interface
350
Network Interface
360
Storage
System Bus

FIG. 3

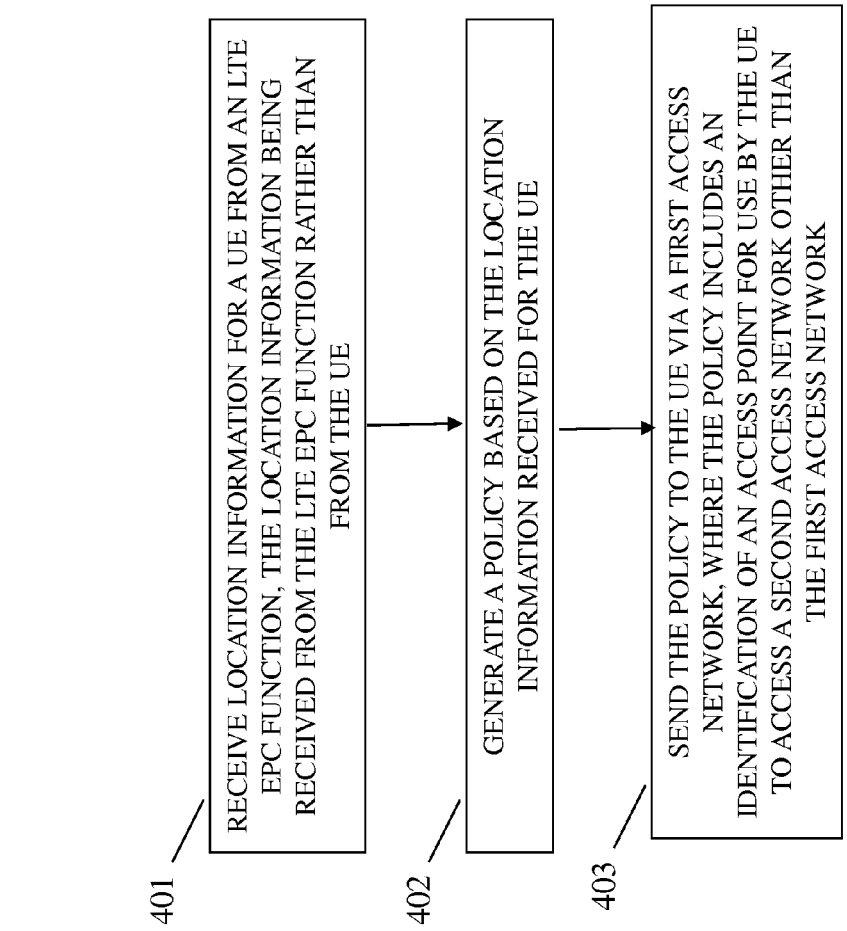

400
401
RECEIVE LOCATION INFORMATION FOR A UE FROM AN LTE EPC FUNCTION, THE LOCATION INFORMATION BEING RECEIVED FROM THE LTE EPC FUNCTION RATHER THAN FROM THE UE
402
GENERATE A POLICY BASED ON THE LOCATION INFORMATION RECEIVED FOR THE UE
403
SEND THE POLICY TO THE UE VIA A FIRST ACCESS NETWORK, WHERE THE POLICY INCLUDES AN IDENTIFICATION OF AN ACCESS POINT FOR USE BY THE UE TO ACCESS A SECOND ACCESS NETWORK OTHER THAN THE FIRST ACCESS NETWORK

FIG. 4

NETWORK ASSISTED ANDSF POLICY UPDATING

FIELD OF THE INVENTION

[0001] The present invention relates generally to communications and, in particular, to access network discovery and selection in wireless communication systems.

BACKGROUND OF THE INVENTION

[0002] This section introduces aspects that may help facilitate a better understanding of the inventions. Accordingly, the statements of this section are to be read in this light and are not to be understood as admissions about what is prior art or what is not prior art.

[0003] The evolution of cell phone and other communications has yielded numerous protocols and access networks for enabling communication between user equipment (UE) and the Internet or other networks. For example, access networks have been established according to LTE (3GPP), CDMA (3GPP2), WiMAX, and WiFi standards. Increasingly, UEs such as smart phones are implementing the capability to connect to multiple types of access networks. For example, it is now common for smart phones to enable connection to WiFi access networks in addition to a cellular access network such as LTE.

[0004] The third generation partnership project (3GPP) has developed standards defining an "access network discovery and selection function" (ANDSF), including enhancements for aiding the UE in automatically selecting alternative access networks for supporting some or all of the network traffic produced by the UE. 3GPP specifies an architecture to assist UE in access network discovery and selection. The architecture includes a client on the UE and a server, within the operator network. A UE reports its location (e.g., GPS, Cell ID) and requests (defined as PULL procedure) Access Network Discovery and Selection Rules (ANDSR). The ANDSF server, taking into consideration subscription, application, operator policy rules, etc., constructs ANDSR for the UE client.

[0005] However, the UE periodically reporting its location to the ANDSF Server consumes a considerable amount of UE resources (especially, battery power) and causes additional signaling traffic within the operator network. Thus, new solutions and techniques that are able to mitigate this issue would meet a need and advance wireless communications generally.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. **1** is a block diagram depiction of an environment for enabling communication via multiple access networks, in accordance with some embodiments of the present invention.

[0007] FIG. **2** is a block diagram depiction of an Evolved Packet Core (EPC), in accordance with some embodiments of the present invention.

[0008] FIG. **3** is a block diagram depiction of an access network discovery and selection function (ANDSF) server, in accordance with some embodiments of the present invention.

[0009] FIG. **4** is a logic flow diagram of functionality performed by an ANDSF server in accordance with various embodiments of the present invention.

[0010] Specific embodiments of the present invention are disclosed below with reference to FIGS. **1-4**. Both the description and the illustrations have been drafted with the intent to enhance understanding. For example, the dimensions of some of the figure elements may be exaggerated relative to other elements, and well-known elements that are beneficial or even necessary to a commercially successful implementation may not be depicted so that a less obstructed and a more clear presentation of embodiments may be achieved. In addition, although the logic flow diagrams above are described and shown with reference to specific steps performed in a specific order, some of these steps may be omitted or some of these steps may be combined, sub-divided, or reordered without departing from the scope of the claims. Thus, unless specifically indicated, the order and grouping of steps is not a limitation of other embodiments that may lie within the scope of the claims.

[0011] Simplicity and clarity in both illustration and description are sought to effectively enable a person of skill in the art to make, use, and best practice the present invention in view of what is already known in the art. One of skill in the art will appreciate that various modifications and changes may be made to the specific embodiments described below without departing from the spirit and scope of the present invention. Thus, the specification and drawings are to be regarded as illustrative and exemplary rather than restrictive or all-encompassing, and all such modifications to the specific embodiments described below are intended to be included within the scope of the present invention.

SUMMARY

[0012] Various methods and apparatuses are provided to address the need for reduced UE location reporting. In one method, an access network discovery and selection function (ANDSF) server receives location information for a UE from a Long Term Evolution (LTE) network. The location information is received from the LTE Evolved Packet Core (EPC) function instead of being received from the UE. The ANDSF server then generates a policy based on the location information received for the UE and sends the policy to the UE via a first access network. The policy includes an identification of an access network (e.g., Wi-Fi Access Point Identifier, i.e., SSID) for use by the UE to access an access network different than the first access network. An article of manufacture is also provided, the article comprising a non-transitory, processor-readable storage medium storing one or more software programs which when executed by one or more processors performs the steps of this method.

[0013] Many embodiments are provided in which the method above is modified. For example, in many embodiments the ANDSF server subscribes to location updates of the UE from a Home Subscriber Server (HSS) in the LTE EPC. In many embodiments the ANDSF server (also or alternatively) requests location information for the UE from a Mobility Management Entity (MME) in the LTE EPC. Depending on the embodiment then, receiving location information for the UE from the LTE EPC involves receiving location information for the UE from an HSS, an MME or another network entity having the UE location information.

[0014] An access network discovery and selection function (ANDSF) server is also provided. The ANDSF server includes a network interface in communication with a first access network, a storage device, and a processor in communication with the network interface and the storage device. The processor is configured to receive location information for a user equipment device (UE) from a Long Term Evolution (LTE) Evolved Packet Core (EPC) function. The location

information is received from the LTE EPC function rather than from the UE. The processor is also configured to generate a policy based on the location information received for the UE and to send the policy to the UE via the first access network. The policy includes an identification of an access point for use by the UE to access a different access network than the first access network. Many embodiments are provided in which this ANDSF server is modified. Examples of such embodiments can be found described above with respect to the method.

DETAILED DESCRIPTION OF EMBODIMENTS

[0015] To provide a greater degree of detail in making and using various aspects of the present invention, a description of our approach to access network discovery and selection and a description of certain, quite specific, embodiments follow for the sake of example. FIGS. **1-3** are referenced to illustrate an example of a specific system and manner in which the present invention may be embodied.

[0016] FIG. **1** depicts an exemplary environment **100** for enabling communication via multiple access networks. The exemplary environment **100** may be a telecommunications network for providing user equipment (UE) **110** with access to a packet data network (PDN) **150**, such as the Internet.

[0017] The UE **110** is a device that communicates with the packet data network **150** for providing the end-user with one or more data services. Such data service may include, for example, voice communication, text messaging, multimedia streaming, and Internet access. More specifically, in various exemplary embodiments, the UE **110** may be a personal or laptop computer, mobile or smart phone, tablet, television set-top box, or any other device capable of communicating with other devices via a network.

[0018] The environment **100** may include multiple routes for the UE **110** to access the PDN **150**. For example, as part of a first route, the environment **110** includes a base station **120** and a 3G/LTE backhaul access network **125**. The base station **120** may be a device that enables communication between user equipment **110** and the 3G/LTE backhaul access network **125**. For example, the base station **120** may be a base transceiver station such as a radio network controller, nodeB, or an evolved nodeB (eNodeB) as defined by 3GPP standards. Thus, the base station **120** may be a device that communicates with the UE **110** via a first medium, such as radio waves, and communicates with the 3G/LTE backhaul access network **125** via a second medium, such as Ethernet cable. In various embodiments, multiple base stations (not shown) may be present to provide mobility to the UE **110**.

[0019] The 3G/LTE backhaul access network **125** may be a series of routers, such as service aggregation routers, and other network elements configured to transport traffic to devices such as various devices belonging to an evolved packet core (EPC) **140**. As will be explained in greater detail below, the EPC **140** may provide controlled and metered access to the PDN **150**.

[0020] As part of a second route to the PDN **150**, the exemplary environment includes a WiFi access point **130** and a WiFi access network **135**. The WiFi access point **130** may be a device that enables communication between user equipment **110** and the WiFi access network **135**. For example, the WiFi access point **130** may be a wireless router or other access point as defined by IEEE standards. Thus, the WiFi access point **130** may be a device that communicates with the UE **110** via a first medium, such as radio waves, and communicates with the WiFi access network **135** via a second medium, such as an Ethernet cable. In various embodiments, multiple WiFi access points (not shown) may be present to provide mobility to the UE **110**.

[0021] The WiFi access network **135** may be a series of routers and other network elements configured to transport traffic to devices such as various devices belonging to the EPC **140**. As such, traffic that is redirected over the WiFi access network **135** may still be controlled and metered by the EPC **140** as will be detailed further below. Additionally, as shown, the WiFi access network **135** may enable non-seamless WiFi offload by providing a direct connection to the PDN, bypassing the EPC **140**.

[0022] It will be appreciated that while the exemplary environment **100** is illustrated as including one WiFi access network and one 3G/LTE access network, various embodiments may include alternative or additional access networks. For example, an alternative environment (not shown) may include 3G/LTE access networks, WiFi access networks, WiMAX access networks, 3GPP access networks, or CDMA access networks. It will be apparent that the various principles described herein with respect to the 3G/LTE access network **125** and WiFi access network **135** may be applied to any combination of such access networks to achieve various benefits described herein.

[0023] In various embodiments, each of the access points **120**, **130** may be associated with one or more identifiers. For example, the WiFi access point **130** may be associated with a unique SSID, or shared SSID along with a unique BSSID. As another example, the cellular access point may be associated with identifiers such as a cell ID, tracking area code (TAC), and location area code (LAC) which may be used to determine the current location of the UE **110**.

[0024] The EPC **140** includes a collection of devices defined by the 3GPP to provide various services according to an LTE network. For example, the EPC **140** may include service gateways, PDN gateways, policy and charging rules function (PCRF) nodes, subscription profile repositories (SPRs), etc. The EPC **140** may manage UE sessions, authorize the transfer of application traffic to and from the PDN **150** upon request, enforce quality of service (QoS) limits and guarantees, meter network usage, apply charges to a subscribers account, or perform any other functions associated with an LTE EPC.

[0025] EPC **140** is depicted in FIG. **2** as including a Mobility Management Entity (MME) **141** and a Home Subscriber Server (HSS) **142**, both being particularly relevant to embodiments described herein. Depending on the embodiment, the MME **141** may perform the signaling and control functions to manage the UE access to network connections, the assignment of network resources, and the management of the mobility states to support tracking, paging, roaming and handovers. The HSS **142** stores a variety of user-related information. Depending on the embodiment, the HSS **142** may store some or all of the following information: user identification, numbering and addressing information; user security information, such as network access control information for authentication and authorization; user location information at an inter-system level; and/or user profile information. The HSS **142** also allows subscription to portions of its stored subscriber information for updates to changes to that information.

[0026] Various embodiments described herein facilitate the discovery of and selection among the available access networks **125**, **135** for transport of data traffic by the UE **110**. To

this end, the UE **110** includes an access network discovery and selection function (ANDSF) client **115** that communicates with an ANDSF server **160** via an S**14** session **170**. As shown, the S**14** session **170** is established via the 3G/LTE backhaul access network **125**; in various embodiments, the S**14** session **170** may be established over other available networks such as the WiFi access network **135** or other networks (not shown). In various embodiments, the S**14** session may transfer messages on the data plane according to the Open Mobile Alliance (OMA) device management (DM) protocol. Various other protocols for the transfer of messages to implement the functionalities described herein will be apparent. In some embodiments, the ANDSF server **160** may have OMA-DM capability while, in other embodiments, the ANDSF server **160** may interface with an existing mobile device management (MDM) server within the carrier network over a proprietary interface. In some embodiments, the ANDSF sever **160** may support both co-located/embedded OMA-DM and standalone OMA-DM. In various embodiments, the ANDSF Server **160** may additionally or alternatively be connected to the WiFi Access Network **135** or Packet Data Network **150** such that the ANDSF Server **160** may be accessed or may access devices via networks other than the 3G/LTE backhaul network **125**.

[0027] The ANDSF client **115** may establish the session by first transmitting identifying information (such as a triplet including IMSI, IMEI, and MSISDN values) to authenticate the subscriber using the UE **110**. If the ANDSF server **160** is able to authenticate the subscriber as an existing and active subscriber, the ANDSF server **160** may create a new S**14** session and transmit an S**14** session identifier back to the ANDSF client **115** for use in future communications.

[0028] Once the S**14** session **170** has been established, the ANDSF server **160** may assist the UE **110** by transmitting access network policies to the ANDSF client **115**. As will be described in greater detail below, access network policies may include identifications of available access points, prioritization of access points, criteria for determining when to use various access points, or other information specified by the 3GPP as used by the UE **110** in automatically determining which access networks **125**, **135** to utilize. Such policies may be delivered according to multiple procedures. In a PULL procedure, the ANDSF client **115** sends a message to the ANDSF server **160** requesting that access network policies be provided. The request message may include information revealing the current location of the UE **110**. For example, the location information may include a current cell identifier, location area code (LAC), tracking area code (TAC), public land mobile network (PLMN) identifier, GPS coordinates, or any other information useful in identifying a location. Based on the location information, the ANDSF server may identify nearby alternative access points and associated priorities, criteria, and other policy information. The generated policy is then returned to the ANDSF client **115** for use.

[0029] Alternatively, the ANDSF server **160** may register for location information updates for the UE **110** from the MME **141** or possibly from the HSS **142**. The ANDSF server **160** might also or alternatively obtain location information from another network entity such as an entity that estimates user location with reasonable accuracy. For example, a user may report his/her location to an internet browser, and the back end web server may make this location information available for ANDSF. The ANDSF server **160** then generates a policy based on the location information received for the UE **110** and sends it to the ANDSF client **115** (assuming there are any ANDSF policy updates that need to be communicated to the UE).

[0030] According to the PUSH procedure, the ANDSF server **160** provides policy information without having recently received a request from the ANDSF client **115**. In other words, the ANDSF server **160** pushes an unsolicited set of policy information to the ANDSF client **115**. Such a PUSH procedure may be used, for example, when policy information is modified by an operator of the ANDSF server **160** or when specifically requested by the operator or any other trigger on the ANDSF Server (e.g., Subscription change or changes to the network information like addition or maintenance of Wi-Fi network). The pushed policy information may be based on the most recently reported location of the UE **110** or based on location information received from the MME **141** or the HSS **142**.

[0031] For example, depending on a network operator's deployment of the system, an operator may choose to PUSH applicable policy information to a UE each time the UE enters a broad geographic area (e.g., all policies applicable for New York City). The ANDSF server **160** may subscribe to location updates for the UE **110** from the HSS **142**. Upon receiving updated location information for UE **110** from the HSS **142**, the ANDSF server **160** may then PUSH applicable policy information to the ANDSF client **115**. The MME **141** is able to provide more granular and usually more accurate location information for UE **110** than that stored in HSS **142**. (For example, HSS location information may be specified at a tracking area level, while MME location information may be specified at a cell level.) So, if the operator chooses to PUSH applicable policy information to a UE each time the UE enters a more specific geographic area (e.g., all policies applicable for Manhattan), the ANDSF server **160** may instead PUSH applicable policy information to the ANDSF client **115** upon receiving location information for UE **110** from the MME **141**.

[0032] In various embodiments, upon moving to a new location, the ANDSF client **115** may check a locally-stored policy database to determine whether any previously-received policies apply to the new location. For example, if the UE **115** reenters a previously visited location before the previously-received policies expire, the ANDSF **115** may locate the policies that were received from the ANDSF server **160** during the last visit to that area. When applicable policies are located locally, the ANDSF client **115** may proceed to utilize those policies, rather than requesting new policies via the S**14** session **170**. Leveraging this behavior, the ANDSF server **160** is able to pre-provision policies in the ANDSF client **115** for use in the future. For example, the ANDSF server **160** may pre-provision policies based on a user's home/work address, driving habits and/or neighborhoods frequented. Such pre-provisioning may be useful, for example, where the ANDSF server **160** enters a period of relatively low activity and may use extra capacity to generate policies.

[0033] FIG. **3** depicts an exemplary hardware diagram of an ANDSF server **300**. The exemplary ANDSF server **300** may correspond to the ANDSF server **160** of FIG. **1**. As shown, the ANDSF server **300** includes a processor **320**, memory **330**, user interface **340**, network interface **350**, and storage **360** interconnected via one or more system buses **310**. It will be understood that FIG. **3** constitutes, in some respects, an

abstraction and that the actual organization of the components of the ANDSF server **300** may be more complex than illustrated.

[0034] The processor **320** may be any hardware device capable of executing instructions stored in memory **330** or storage **360**. As such, the processor may include a microprocessor, field programmable gate array (FPGA), application-specific integrated circuit (ASIC), or other similar devices.

[0035] The memory **330** may include various memories such as, for example L1, L2, or L3 cache or system memory. As such, the memory **330** may include static random access memory (SRAM), dynamic RAM (DRAM), flash memory, read only memory (ROM), or other similar memory devices.

[0036] The user interface **340** may include one or more devices for enabling communication with a user such as an administrator. For example, the user interface **340** may include a display, a mouse, and a keyboard for receiving user commands.

[0037] The network interface **350** may include one or more devices for enabling communication with other hardware devices. For example, the network interface **350** may include a network interface card (NIC) configured to communicate according to the Ethernet protocol. Additionally, the network interface **350** may implement a TCP/IP stack for communication according to the TCP/IP protocols. Various alternative or additional hardware or configurations for the network interface **350** will be apparent.

[0038] The storage **360** may include one or more machine-readable storage media such as read-only memory (ROM), random-access memory (RAM), magnetic disk storage media, optical storage media, flash-memory devices, or similar storage media. In various embodiments, the storage **360** may store instructions for execution by the processor **320** or data upon which the processor **320** may operate. For example, the storage **360** may store ANSDF server instructions for implementing basic ANDSF server functionality such as, for example, S**14** session establishment, message processing, and UE/MME/HSS location information processing. The storage **360** may also store policy generation instructions and structures for use in generating policies to be provisioned to ANSDF clients. The storage **360** may also store the S**14** sessions along with a copy of ANDSF policies already provided to the ANDSF client. These ANDSF policies may be used to check whether any changes need to be sent to the UE when the ANDSF server receives UE location updates from the MME, HSS or any other network entity that can provide the UE location information.

[0039] It will be apparent that various information described as stored in the storage **360** may be additionally or alternatively stored in the memory **330**. In this respect, the memory **330** may also be considered to constitute a "storage device." Various other arrangements will be apparent. Further, the memory **330** and storage **360** may both be considered to be "non-transitory machine-readable media." As used herein, the term "non-transitory" will be understood to exclude transitory signals but to include all forms of storage, including both volatile and non-volatile memories.

[0040] While the ANDSF server **300** is shown as including one of each described component, the various components may be duplicated in various embodiments. For example, the processor **320** may include multiple microprocessors that are configured to independently execute the methods described herein or are configured to perform steps or subroutines of the methods described herein such that the multiple processors cooperate to achieve the functionality described herein. In some embodiments, such as those wherein the ANSDF server is implemented in a cloud computing architecture, components may be physically distributed among different devices. For example, the processor **320** may include a first microprocessor in a first data center and a second microprocessor in a second data center. Various other arrangements will be apparent.

[0041] The detailed and, at times, very specific description above is provided to effectively enable a person of skill in the art to make, use, and best practice the present invention in view of what is already known in the art. In the examples, specifics are provided for the purpose of illustrating possible embodiments of the present invention and should not be interpreted as restricting or limiting the scope of the broader inventive concepts.

[0042] Having described certain embodiments in detail above, a review of the more general aspects common to many of the embodiments of the present invention can be understood with reference to FIG. **4**. Diagram **400** of FIG. **4** is a logic flow diagram of functionality performed by an ANDSF server in accordance with various embodiments of the present invention. In the method depicted in diagram **400**, an ANDSF server receives (**401**) location information for a UE from an LTE EPC function. The location information is received from the LTE EPC function instead of being received from the UE. This reduces the burden of UE location reporting that currently exists, saving valuable UE resources such as battery life. Instead, location information already available in the network is used by the ANDSF server.

[0043] Depending on the embodiment, the ANDSF server may subscribe to location updates of the UE from an HSS, an MME or both. Additionally or alternatively, the ANDSF server may request or obtain location information for the UE from an MME or another network entity that can provide UE location with reasonable accuracy. Depending on the embodiment then, the ANDSF server may receive location information for the UE from an HSS or an MME in the LTE EPC. The ANDSF server then generates (**402**) a policy based on the location information received for the UE and sends (**403**) the policy to the UE via a first access network. The policy includes an identification of an access point for use by the UE to access an access network different than the first access network.

[0044] A person of skill in the art would readily recognize that steps of various above-described methods can be performed by programmed computers. Herein, some embodiments are intended to cover program storage devices, e.g., digital data storage media, which are machine or computer readable and encode machine-executable or computer-executable programs of instructions where said instructions perform some or all of the steps of methods described herein. The program storage devices may be, e.g., digital memories, magnetic storage media such as a magnetic disks or tapes, hard drives, or optically readable digital data storage media. The embodiments are also intended to cover computers programmed to perform said steps of methods described herein.

[0045] Benefits, other advantages, and solutions to problems have been described above with regard to specific embodiments of the present invention. However, the benefits, advantages, solutions to problems, and any element(s) that may cause or result in such benefits, advantages, or solutions, or cause such benefits, advantages, or solutions to become

more pronounced are not to be construed as a critical, required, or essential feature or element of any or all the claims.

[0046] As used herein and in the appended claims, the term "comprises," "comprising," or any other variation thereof is intended to refer to a non-exclusive inclusion, such that a process, method, article of manufacture, or apparatus that comprises a list of elements does not include only those elements in the list, but may include other elements not expressly listed or inherent to such process, method, article of manufacture, or apparatus. The terms a or an, as used herein, are defined as one or more than one. The term plurality, as used herein, is defined as two or more than two. The term another, as used herein, is defined as at least a second or more. Unless otherwise indicated herein, the use of relational terms, if any, such as first and second, top and bottom, and the like are used solely to distinguish one entity or action from another entity or action without necessarily requiring or implying any actual such relationship or order between such entities or actions.

[0047] The terms including and/or having, as used herein, are defined as comprising (i.e., open language). The term coupled, as used herein, is defined as connected, although not necessarily directly, and not necessarily mechanically. Terminology derived from the word "indicating" (e.g., "indicates" and "indication") is intended to encompass all the various techniques available for communicating or referencing the object/information being indicated. Some, but not all, examples of techniques available for communicating or referencing the object/information being indicated include the conveyance of the object/information being indicated, the conveyance of an identifier of the object/information being indicated, the conveyance of information used to generate the object/information being indicated, the conveyance of some part or portion of the object/information being indicated, the conveyance of some derivation of the object/information being indicated, and the conveyance of some symbol representing the object/information being indicated.

What is claimed is:

1. A method for policy updating performed by an access network discovery and selection function (ANDSF) server, the method comprising:

receiving, by an ANDSF server, location information for a user equipment device (UE) from a Long Term Evolution (LTE) Evolved Packet Core (EPC) function, the location information being received from the LTE EPC function rather than from the UE;

generating, by the ANDSF server, a policy based on the location information received for the UE;

sending, by the ANDSF server, the policy to the UE via a first access network, wherein the policy includes an identification of an access point for use by the UE to access a second access network other than the first access network.

2. The method as recited in claim **1**, further comprising

subscribing, by the ANDSF server, to location updates of the UE from a Home Subscriber Server (HSS) in the LTE EPC.

3. The method as recited in claim **1**, further comprising

registering, by the ANDSF server, to location information for the UE from a Mobility Management Entity (MME) in the LTE EPC.

4. The method as recited in claim **1**, wherein receiving location information for the UE from the LTE EPC comprises

receiving location information for the UE from at least one of a Home Subscriber Server (HSS) in the LTE EPC or a Mobility Management Entity (MME) in the LTE EPC.

5. An access network discovery and selection function (ANDSF) server for updating policies, the ANDSF server comprising:

a network interface in communication with a first access network;

a storage device; and

a processor in communication with the network interface and the storage device, wherein the processor is configured to:

receive location information for a user equipment device (UE) from a Long Term Evolution (LTE) Evolved Packet Core (EPC) function, the location information being received from the LTE EPC function rather than from the UE,

generate a policy based on the location information received for the UE, and

send the policy to the UE via the first access network, wherein the policy includes an identification of an access point for use by the UE to access a second access network other than the first access network.

6. The ANDSF server as recited in claim **5**, wherein the processor is further configured to

subscribe to location updates of the UE from a Home Subscriber Server (HSS) in the LTE EPC.

7. The ANDSF server as recited in claim **5**, wherein the processor is further configured to

register to location information for the UE from a Mobility Management Entity (MME) in the LTE EPC.

8. The ANDSF server as recited in claim **5**, wherein being configured to receive location information for the UE from the LTE EPC comprises

being configured to receive location information for the UE from at least one of a Home Subscriber Server (HSS) in the LTE EPC or a Mobility Management Entity (MME) in the LTE EPC.

9. A non-transitory machine-readable storage medium encoded with instructions for execution by an access network discovery and selection function (ANDSF) server for updating policies, the non-transitory machine-readable storage medium comprising:

instructions for receiving, by an ANDSF server, location information for a user equipment device (UE) from a Long Term Evolution (LTE) Evolved Packet Core (EPC) function, the location information being received from the LTE EPC function rather than from the UE;

instructions for generating, by the ANDSF server, a policy based on the location information received for the UE;

instructions for sending, by the ANDSF server, the policy to the UE via a first access network, wherein the policy includes an identification of an access point for use by the UE to access a second access network other than the first access network.

10. The storage medium as recited in claim **9**, further comprising

instructions for subscribing, by the ANDSF server, to location updates of the UE from a Home Subscriber Server (HSS) in the LTE EPC.

11. The storage medium as recited in claim **9**, further comprising

instructions for registering, by the ANDSF server, to location information for the UE from a Mobility Management Entity (MME) in the LTE EPC.

12. The storage medium as recited in claim **9**, wherein the instructions for receiving location information for the UE from the LTE EPC comprise

instructions for receiving location information for the UE from at least one of a Home Subscriber Server (HSS) in the LTE EPC or a Mobility Management Entity (MME) in the LTE EPC.

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