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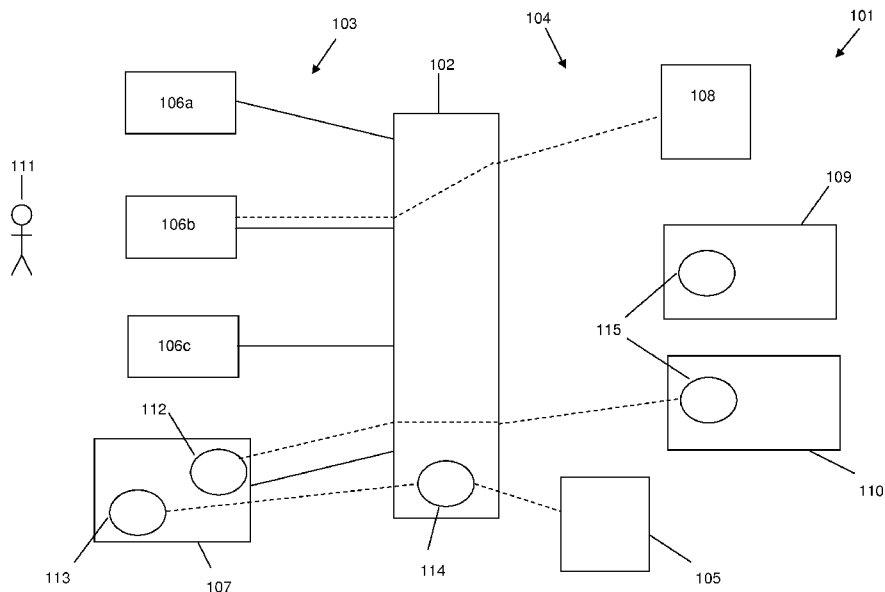


Figure 1

(57) **Abstract:** The present invention relates to methods and apparatus for configuring end user equipment 106, 107. A service broker 105 may transmit access settings to an access node 102 where the access settings are for a predetermined service provider 110. The access settings may be transmitted to end user equipment 107 so that the predetermined service provider 110 can access the end user equipment 107 in order to configure the end user equipment 107 to receive a service provided by the service provider 110.

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Description

Title

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Service Access

The present invention relates to providing an improved service access between a user and at least one service provider.

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Presently, there are a multitude of different services that are available to a user each of which may be offered by a different service provider. For example, a Mobile Network Operator (MNO) may provide the service of mobile voice and data calls, an Internet Service Provider (ISP) may provide the service of Internet access, a telecommunication operator (Telco) may provide the service of fixed voice calls, an access provider may provide the service of broadband access, a further service provider may provide the service of

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Internet Protocol Television (IPTV) or Video on Demand (VoD) and so on. Furthermore, it is expected that in the future as technologies advance more and more different services will become available to the user where different service providers may also offer those services.

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Accordingly, a user that requires more than one service will typically have to sign a contract with each of the different service providers. However, having several contracts with several service providers for different services, where each contract will most likely have different terms and conditions, different tariffs or costs, different points of contact, different contract lengths etc, may cause confusion and difficulties for the user.

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Therefore, a user would prefer to have a single contract for all, or for the majority, of the services they want to use which has been recognised in the industry. In order to address this, one service provider, e.g. a Telco, may expand
5 their operations to include further services such as Internet access which they can offer as a package to the user. In another mode of operation, several service providers may agree to offer their services as part of a package with one of the service providers acting as the face to the user. In
10 a further mode of operation, a separate company may have an agreement with the service providers to package several services together where the service broker offers the package to a user.

15 However, in each of the above modes of operation the user is restricted to receiving the services that are provided as part of the package. For example, one package may include an excellent fixed service and mobile service but a poor Internet access service as there is no flexibility in the
20 package of services. Furthermore, in each of the above modes of operation the company or service provider that is facing the end user and providing a package of services may be known as a service broker.

25 Typically, in order for a user to receive a service they require specific end user equipment or node, e.g. a set top box, to be connected to the user's home network via an access router. Alternatively, the access router may include the functionality necessary to enable the user to receive the
30 service where the functionality is typically separate to the access router's normal functionality, for example a print server may be incorporated into the access router.

An access router is typically the access point between the user's home network and an external network which may be based on various communication protocols and technologies such as a Digital Subscriber Line (DSL) network, cable
5 network, Passive optical Network (PON), satellite network and so on. Thus, the access router typically includes various functionalities such as Dynamic Host Configuration Protocol (DHCP), Network Address Translation (NAT), a firewall and so on. The standard functionality of an access router is well
10 known in the art and therefore not described in detail.

The specific end user equipment is typically provided by the service provider and as such is usually branded by the service provider meaning that it cannot be re-used by a
15 different service provider should the user decide to switch the supplier of a particular service. The service provider supplying the end user equipment will typically also want control over the end user equipment in order to commission the end user equipment but also to prevent users or other
20 third parties from performing any unauthorised alterations to the end user equipment. Moreover, as the service provider supplies the end user equipment then the cost of manufacturing the end user equipment will typically be added to the tariff or subscription charges levied by the service
25 provider.

Thus, there is currently a need to provide the ability to enable a service broker to use generic end user equipment, to be able to flexibly choose any service provider for a
30 particular service and to enable the chosen service provider to configure the generic end user equipment as the service broker may not have the means or the ability to control and configure the end user equipment.

According to a first aspect of the present invention there is provided a method comprising the steps of: receiving access settings from a service broker wherein the access settings are for a predetermined service provider; and transmitting
5 the access settings to an end user equipment such that the predetermined service provider can access the end user equipment in order to configure the end user equipment to receive a service provided by the service provider.

10 The access settings may include the predetermined service provider's certificates for the end user equipment, user identity and/or password, connection parameters and so on. As will be appreciated, for different service providers and for different services the access settings may include all
15 access settings necessary to permit the predetermined service provider to access the end user equipment.

Thus, once the access settings are assigned to the end user equipment then only the predetermined service provider may
20 access the end user equipment. The predetermined service provider may then have the ability to access and configure the end user equipment.

The settings may further include parameters to block a
25 further service provider from accessing the end user equipment. Therefore, if one service provider is currently providing a service via the end user equipment then they can be blocked from accessing the end user equipment enabling a different service provider, e.g. the predetermined service
30 provider, to gain access to the end user equipment. This has the advantage that the same end user equipment can be used when changing the service provider for a given service.

The predetermined service provider may be predetermined by the service broker from at least one service provider that is able to provide the service based on at least one predetermined criteria. Thus, the service broker may
5 predetermine which service provider, from all available service providers, is to provide the service to the end user equipment based on any relevant predetermined criteria. For example, the predetermined criteria may include geographical region or location, quality of service, regulatory issues,
10 user's wishes and so on. As will be appreciated, the predetermined criteria may include any criteria that are relevant to making a choice as to which service provider is to provide the service to the end user equipment. The predetermined criteria may be different for different service
15 providers and different services.

The access settings may be received at an access node and the end user equipment may be separate to the access node or the end user equipment may be integrated with the access node.
20 The access node may be an access router. The access node may be the gateway between a user's home network and an external network. The end user equipment may be separate to the access node, for example, a set top box that may be
operatively connected to the access node. Alternatively, the
25 end user equipment may be integrated with the access node either a part of the hardware of the access node or as functionality.

The method may further comprise the steps of receiving
30 functionality from the service broker wherein the functionality is the end user equipment; and installing the functionality. Thus, if the functionality required to enable the end user to receive and use the service can be integrated with the access node then the service broker may transmit the

functionality to the access node. The access node may therefore receive the functionality from the service broker and install the functionality on the access node and as such the access node becomes the end user equipment.

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According to a second aspect of the present invention there is provided an apparatus comprising: a first input adapted to receive access settings from a service broker wherein the access settings are for a predetermined service provider; and
10 an output adapted to transmit the access settings to an end user equipment such that the predetermined service provider is permitted to access the end user equipment in order to configure the end user equipment to receive a service provided by the service provider.

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The settings may be received at an access node.

According to a third aspect of the present invention there is provided an access node comprising: an input adapted to
20 receive access settings from a service broker wherein the access settings are for a predetermined service provider; and an output adapted to transmit the access settings to an end user equipment such that the predetermined service provider can access the end user equipment in order to configure the
25 end user equipment to receive a service provided by the service provider.

The access node may be an access router. The end user equipment may be separate to the access node or the end user
30 equipment may be integrated with the access node.

The apparatus may further comprise a second input adapted to receive functionality from said service broker wherein said functionality is said end user equipment; and a processor

adapted to install said functionality. The first input and the second input may be the same input or different inputs.

According to a fourth aspect of the present invention there is provided a computer program product comprising computer readable executable code for: receiving access settings from a service broker wherein the access settings are for a predetermined service provider; and transmitting the access settings to an end user equipment such that the predetermined service provider can access the end user equipment in order to configure the end user equipment to receive a service provided by the service provider.

The computer program product may further comprise computer readable executable code for performing any or all of the functions in accordance with the aspects of the invention.

According to fifth aspect of the present invention there is provided a method comprising the steps of: receiving at an end user equipment access settings wherein the access settings are for a predetermined service provider; storing the access settings in the end user equipment; and receiving at the end user equipment configuration settings from the predetermined service provider wherein the configuration settings configure the end user equipment to receive a service provided by the predetermined service provider.

Thus, the end user equipment receives and stores access settings for the predetermined service provider. This has the advantage that unbranded end user equipment may be provided as the access settings received at the end user equipment identify the predetermined service provider so that only the predetermined service provider can access the end

user equipment and provide the configuration settings to the end user equipment.

The access settings may further include parameters to block a further service provider from accessing the end user equipment. Therefore, if one service provider is currently providing a service via the end user equipment then they can be blocked from accessing the end user equipment enabling a different service provider, e.g. the predetermined service provider, to gain access to the end user equipment. This has the advantage that the same end user equipment can be used when changing the service provider for a given service.

The access settings may be received from an access node. The access settings may be received from a service broker. The end user equipment may be separate to the access node or the end user equipment may be integrated with the access node.

According to a sixth aspect of the present invention there may be provided an apparatus comprising: a first input adapted to receive at an end user equipment access settings wherein the access settings are for a predetermined service provider; a processor adapted to store the access settings in the end user equipment; and a second input adapted to receive at the end user equipment configuration settings from the predetermined service provider wherein the configuration settings configure the end user equipment to receive a service provided by the predetermined service provider.

According to a seventh aspect of the present invention there is provided end user equipment comprising: a first input adapted to receive access settings wherein the access settings are for a predetermined service provider; a processor adapted to store the access settings; and a second

input adapted to receive configuration settings from the predetermined service provider wherein the configuration settings configure the end user equipment to receive a service provided by the predetermined service provider.

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The access settings may be received from an access node and the end user equipment may be separate to the access node or the end user equipment may be integrated with the access node.

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The first input and the second input may be the same input or different inputs.

According to a eighth aspect of the present invention there is provided a computer program product comprising computer readable executable code for: receiving at an end user equipment access settings wherein the access settings are for a predetermined service provider; storing the access settings in the end user equipment; and receiving at the end user equipment configuration settings from the predetermined service provider wherein the configuration settings configure the end user equipment to receive a service provided by the predetermined service provider.

25 The computer program product may further comprise computer readable executable code for performing any or all of the functions in accordance with the aspects of the invention.

According to an ninth aspect there is provided a system comprising end user equipment and an access node wherein the end user equipment is operatively connected to the access node; the system is adapted such that: the access node receives access settings from a service broker wherein the access settings are for a predetermined service provider; the

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access node transmits the access settings to the end user equipment; the end user equipment receives the access settings; the end user equipment stores the access settings; and the end user equipment receives configuration settings
5 from the predetermined service provider wherein the configuration settings configure the end user equipment to receive a service provided by the predetermined service provider.

10 Embodiments of the present invention will now be described, by way of example only, and with reference the accompanying drawings in which:

Figure 1 shows a block diagram in accordance with many
15 embodiments of the present invention.

In many of the embodiments of the present invention there are provided methods, apparatus and systems for enabling a more flexible and efficient mechanism for providing services to
20 users. Figure 1 shows a simplified block diagram of a system 101 in accordance with many of the embodiments of the present invention.

In many of the embodiments a service broker 105 will be the
25 single point of contact for a user 111 in order to obtain the services the user 111 wishes to receive irrespective of the service provider or number of service providers 108, 109, 110 that are available. The service broker 105 may be an existing service provider or may be a separate company that
30 provides the functionality of a service broker.

In the system 101 an access router 102 acts as the interface between the users's home network 103 and the external network 104 e.g. a DSL network. The access router 102 may include

functionality to enable the entities 106a, 106b, 106c on the user's home network 103 to transmit data to and receive data from entities located on the external network 104. The standard functionality of an access router 102 is well known
5 to a person skilled in the art and therefore will not be described in detail.

The access router 102 may be provided to the user 111 by the service broker 105 or the user 111 may purchase the access
10 router 102 from a retailer or a service provider. On the user's home network 103 the user may have several entities, or end user equipment, operatively connected to the access router 102 which enable the user to receive services that they have registered or signed up for. For example, the end
15 user equipment may include a computer 106a for internet access, an IPTV box 106b to receive IPTV, a personal phone 106c to make mobile and/or fixed line voice calls and so on. As a person skilled in the art will appreciate, there are many different services that a user 111 may receive and that
20 for each service a specific end user equipment entity may be required. As will be further appreciated, for some services, e.g. Internet access, the functionality may be incorporated into the access router 102 rather than require an extra entity attached to the access router 102 on the user's home
25 network 103.

In the example shown in Figure 1, a user 111 is currently receiving several services each of which may be determined or chosen by the service broker which enables the user 111 to
30 have a single contract and point of contact for each service they receive. For example, as shown in Figure 1 the user 111 is receiving an IPTV service from service provider 108 via the access router 102 and the IPTV end user equipment 106b. The service broker 105 may have determined service provider

108 was the best to provide the IPTV service based on one or more predetermined criteria such as the user's 111 choice, the geographical location and so on.

5 If the user 111 wishes to add a further service to their package then the user 111 may contact their service provider 105 requesting a particular service or services. Alternatively, the user 111 may not currently be receiving any services or wish to change service broker and/or service
10 provider and therefore may contact the service broker 105 to start receiving one or more services as a package.

Irrespective of the service requested by the user 111 the service broker 105 will provide the necessary end user
15 equipment 107 for the service.

Conventionally, the service provider of the service would supply the end user equipment as the service provider needs to be able to control the end user equipment in order to
20 configure the end user equipment, to control the end user equipment and to prevent any unauthorised changes being made to the end user equipment. Thus, conventionally the service provider will supply branded end user equipment which means that the end user equipment may only be used for receiving
25 the service from the service provider and, should the user change service provider, the end user equipment will have to be replaced with the new service provider's branded end user equipment. Accordingly, each service provider will have to manufacture or obtain end user equipment that is designed and
30 branded solely for that service provider which will increase the service provider's costs. Plus, conventionally a service broker could not supply the end user equipment due to the reasons that the service provider requires control over the end user equipment or that the configuration and control of

the end user equipment is too difficult or complicated for the service broker to manage.

5 However, many of the embodiments of the present invention provide a mechanism to enable the service broker to supply the user with generic end user equipment in order to address the problems and drawbacks described hereinabove.

10 Returning to Figure 1, the service broker 105 supplies the user 111 with the end user equipment 107 for the service that the user 111 wishes to receive.

The end user equipment 107 supplied by the service broker 105 may include two functions that enable the end user equipment
15 107 to be provided by the service broker 105 whilst enabling a chosen or predetermined service provider from the more than one service providers 109, 110 available to configure and control the end user equipment 107. The functions also enable the end user equipment 107 to be used by a different
20 service provider should the service provider be changed for a particular service. The first function may be a Node Assignment Client (NAC) function 113 and the second function may be a Node Control Client (NCC) function 112.

25 In the example shown in Figure 1, the access router 102 is provided with a new function which may be a Node Assignment Server (NAS) function 114. However, the NAS function may be provided on the service broker's 105 servers.

30 Each of the service providers 109, 110 may also include a function which may be a Node Control Server (NCS) function 115.

Therefore, when a user 111 requests a new service from the service broker 105, the service broker 105 supplies or provides the end user equipment 107 necessary to enable the user 111 to receive the service. The user 111 may then take
5 the necessary steps to operatively connect the end user equipment 107 to the user's home network 104 and to the access router 102.

The service broker 105 will determine which of the two
10 available service providers 109, 110 will be chosen or predetermined to supply or provide the requested service to the user 111. As will be appreciated, there could be any number of service providers that are able to supply the service to the user, though in this example only two possible
15 service providers are shown.

The service broker 105 may choose or predetermine the service provider that is to supply the service to the user 111 based on any relevant predetermined criteria. For example, the
20 relevant predetermined criteria may include any of the geographical area or region, the quality of service, user's 111 wishes, inter-working criteria, regulatory issues and so on.

25 In this example, the service broker 105 may predetermine or choose the service provider 110 to provide the service to the user 111. The service broker 105 will instruct the NAS function 114 to transmit access settings to the NAC function 113 in the end user equipment 107. The access settings that
30 the NAS function 114 is instructed to transmit to the NAC function 113 enable the end user equipment 107 to be configured such that only the chosen or predetermined service provider 110 can access, control and or configure the end

user equipment 107 to receive the service provided by the service provider 110.

The access settings that the NAS function 114 is instructed
5 to transmit to the end user equipment 107 via the NAC
function 113 may include, for example, tunnelling parameters
for the end user equipment 107, service provider specific
certificates for the new end user equipment 107,
activation/deactivation commands for particular service
10 providers, user identification and/or password for the chosen
service provider 110 and so on. As will be appreciated, for
different services, end user equipment and different service
providers the access settings necessary to grant access to a
predetermined service provider may be different in each case.

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Once the service broker 105 has communicated with the end
user equipment 107 to apply the necessary access settings,
the predetermined or chosen service provider 110 may then be
able to access, control and configure the end user equipment
20 107. The service provider 110 transmits configuration
settings to the end user equipment 107 via the NCS function
115 and the NCC function 112 in order to configure the end
user equipment 107 thereby enabling the user 111 to receive
the service they have requested. The predetermined service
25 provider 110 may authenticate itself with the end user
equipment 107 prior to transmitting the configuration settings
via the access settings stored in the end user equipment 107.

Thus, many of the embodiments of the present invention enable
30 any service to be provided to a user where the service broker
can choose any of the available service providers to provide
the service via generic/unbranded end user equipment supplied
by the service broker. The service may be any service that
is presently available, e.g. mobile voice, fixed voice, IPTV,

broadband access and so on, or be a new service that may be available in the future.

One emerging technology and service that many of the
5 embodiments may be applied to is the provision of cellular Femto access points into the user's home or business network. The Femto access point is a small cellular base station that is designed for use in a home or small business which connects to a service provider's network via a broadband
10 wireline connection such as a DSL or cable network. The Femto access point enables service providers to extend service coverage indoors especially where access would otherwise be limited or unavailable and incorporates the functionality and capability of a typical base station

15 Thus, the Femto Access Service that may be provided to a user provides cellular access at a user's home or business where a user's mobile communication device, e.g. a mobile phone, can connect and communicate with the Femto access point via the
20 same radio access mechanisms as would be used to communicate with a base station in a public cellular network. As such, the user can use their mobile phone to make a call in the usual manner but if the user is at home then the call may be transferred via the Femto access point. This has several
25 advantages including that the traffic from the mobile communication device is transferred or offloaded from the public cellular network onto a wireline network, for example, the Internet, using the user's broadband wireline connection from the user's home network. Therefore, resources in the
30 public cellular network can be more efficiently used especially as the public cellular network may not be able to handle the expected increase in mobile traffic over the coming years.

This example of providing a Femto Access Service to a user will now be described, again with reference to Figure 1. In Figure 1, the end user equipment 107 supplied by the service broker 105 will be a Home eNode-B (H(e)NB) which is the Femto
5 access point. As mentioned hereinabove, the functionality of the Femto access point may alternatively be integrated with the access router 102.

The H(e)NB 107 supplied by the service broker 105 will
10 include the NAC function 113 and the NCC function 112. The service broker 105 may then predetermine or choose a service provider 110 of the service providers 109, 110 available that can provide the service based on relevant criteria, e.g. quality of service, region and so on. In the case of the
15 example of providing the femto access service the service providers 109, 110 will typically be a Public Land Mobile Network (PLMN) operator.

Once the H(e)NB 107 has been operatively connected to the
20 user's home network 104 and the access router 102 then the service broker 105 may then instruct the NAS function 114 on the access router 102 to transmit or communicate the necessary access settings to the H(e)NB 107 via the NAC function 113 on the H(e)NB 107. The access settings received
25 by the access router 102 from the service broker 105 may include the access settings necessary to enable the predetermined or chosen service provider 110 to communicate with the H(e)NB 107 such that the service provider 110 can control and configure the H(e)NB 107, for example, the access
30 settings may include authorisation and authentication settings. The access settings applied to the H(e)NB 107 by the service broker 105 via the NAS function 114 and the NAC function 113 enable the H(e)NB 107 to become a logical part of the service provider's network in terms of allowing the

service provider 110 to control, manage and configure the H(e)NB 107. The service broker 105 may communicate with the NAS function 114 in the access router 102 using any one of several known communication protocols, for example, the communication may conform to the known TR-069 protocol. The service broker 105 may typically comprise one or more servers which may perform the steps of communicating with the access router 102 in order to instruct the NAS function 114 to apply the necessary settings to the H(e)NB 107. Alternatively, the NAS function 114 may be located on the service broker's servers which can communicate, via the access router 102, with the NAC function 113 on the H(e)NB 107.

Once the settings have been successfully applied to the H(e)NB 107 then the predetermined or chosen service provider 110 may communicate with the H(e)NB 107 via the NCS function 115 and the NCC function 112. The service provider is allowed to communicate with and access the H(e)NB 107 as the H(e)NB 107 was configured by the service broker with access settings that relate to the chosen or predetermined service provider 110. The service provider 110 may communicate with the H(e)NB 107 using any number of known communication protocols, for example, the communication may conform to the known TR-069 protocol. The service provider 110 can also perform all necessary procedures in order to configure, manage and control the H(e)NB 107, for example, the service provider 110 can perform discovery and registration procedures. The service provider 110 may transmit the necessary configuration settings to the H(e)NB 107 which enables the H(e)NB 107 to be configured to receive the requested service.

In the above described examples, a new service was being provisioned for a user. However, many of the embodiments

also enable the service provider to be changed without requiring any new end user equipment. In this case the service broker via the NAS function may communicate with the end user equipment via the NAC function in order to apply new settings which may include the command or instruction to deactivate one service provider's access to the end user equipment. The new settings relating to the new predetermined or chosen service provider can then be applied to the end user equipment enabling the new service provider to access the end user equipment so as to provide the service to the user. Thus, the same end user equipment may be used for different service providers.

In the above examples, the NCS function was part of the service provider and would typically reside in the service provider's management systems or on a server or computing apparatus of the service provider. However, in many of the embodiments the NCS function may be located on a different entity or distributed between different entities belonging to the service provider. For example, in the above case of providing the Femto Access Service the NCS functionality may be located on, or distributed between the Security Gateway (SeGW), H(e)NB Gateway (H(e)NB-GW), Mobility Management Entity (MME) and so on.

In the above described examples, new end user equipment was initially configured by a service broker to enable a chosen or predetermined service provider to control and configure the end user equipment in order to provide the service to the user. However, in many of the embodiments the service to be provided to the user may allow the functionality to be incorporated in to other equipment such as the access router. In other words, depending on the service the "end user equipment" may be integrated in to the access router if it is

appropriate and thus, the access router will become the end user equipment.

If the functionality required to receive and use the service
5 may be integrated with the access router 102 then the service
broker may initially download and install the functionality
on the access router 102. Once the functionality has been
downloaded and installed on the access router along with the
NAC and NCC functionality then the access router effectively
10 becomes the end user equipment and the process of configuring
the end user equipment may follow the same procedure or
process as described hereinabove. In other words, the NAS
function may then communicate or transmit the necessary
settings to the NAC function which enable the chosen or
15 predetermined service provider to access, control and
configure the new functionality installed on the access
router to provide the service to the user. As described
hereinabove, the service broker may be any company or service
provider that provides a package of services to the end user.

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Accordingly, many of the embodiments of the present invention
have the advantage that a user to have a single contract or
point of contact with a service broker whilst providing a
choice of service provider for each of the services that the
25 user wishes to receive. A further advantage is that the many
embodiments enable a service broker to supply the end user
equipment which is unbranded and therefore may be used by any
service provider to provide the service for which the end
user equipment is required. The service broker may apply
30 settings or configure the end user equipment with parameters
and details of the service provider that the service broker
has predetermined or chosen to provide the service to the
user. Thus, once the end user equipment has been configured
by the service broker then the predetermined or chosen

service provider may then communicate with the end user
equipment in order to configure it so that it can receive the
service from the service provider. Many of the embodiments
also provide the ability to change the service provider with
5 requiring new end user equipment by the service broker re-
configuring the end user equipment to allow access from a
different service provider. The end user equipment may be a
separate entity or node attached to the user's home network
or the end user equipment may be functionality that may be
10 integrated into other entities on the user's home network
such as an access router.

While preferred embodiments of the invention have been shown
and described, it will be understood that such embodiments
15 are described by way of example only. Numerous variations,
changes and substitutions will occur to those skilled in the
art without departing from the scope of the present invention
as defined by the appended claims. Accordingly, it is
intended that the following claims cover all such variations
20 or equivalents as fall within the spirit and the scope of the
invention.

Claims

1. A method comprising the steps of:
receiving access settings from a service broker wherein
5 said access settings are for a predetermined service
provider; and
transmitting said access settings to end user equipment
such that said predetermined service provider can access said
end user equipment in order to configure said end user
10 equipment to receive a service provided by said service
provider.
2. The method as claimed in claim 1 in which said access
settings further include parameters to block a further
15 service provider from accessing said end user equipment.
3. The method as claimed in claim 1 or 2 in which said
predetermined service provider is predetermined by said
service broker from at least one service provider that is
20 able to provide said service based on at least one
predetermined criteria.
4. The method as claimed in any one of the preceding claims
further comprising the steps of:
25 receiving functionality from said service broker wherein
said functionality is said end user equipment; and
installing said functionality.
5. An apparatus comprising:
30 a first input adapted to receive access settings from a
service broker wherein said access settings are for a
predetermined service provider; and
an output adapted to transmit said access settings to an
end user equipment such that said predetermined service

provider can access said end user equipment in order to configure said end user equipment to receive a service provided by said service provider.

5 6. The apparatus as claimed in claim 5 further comprising:
a second input adapted to receive functionality from said service broker wherein said functionality is said end user equipment; and
a processor adapted to install said functionality.

10 .

7. A computer program product comprising computer readable executable code for:

receiving access settings from a service broker wherein said access settings are for a predetermined service

15 provider; and

transmitting said access settings to end user equipment such that said predetermined service provider can access said end user equipment in order to configure said end user equipment to receive a service provided by said service

20 provider.

8. A method comprising the steps of:

receiving at an end user equipment access settings wherein said access settings are for a predetermined service

25 provider;

storing said access settings in said end user equipment; and

receiving at said end user equipment configuration settings from said predetermined service provider wherein
30 said configuration settings configure said end user equipment to receive a service provided by said predetermined service provider.

9. The method as claimed in claim 8 in which said access settings further include parameters to block a further service provider from accessing said end user equipment.

5 10. The method as claimed in claim 8 or 9 in which said access settings are received from an access node and said end user equipment is separate to said access node or said end user equipment is integrated with said access node.

10 11. An apparatus comprising:
a first input adapted to receive at an end user equipment access settings wherein said access settings are for a predetermined service provider;
a processor adapted to store said access settings in
15 said end user equipment; and
a second input adapted to receive at said end user equipment configuration settings from said predetermined service provider wherein said configuration settings configure said end user equipment to receive a service
20 provided by said predetermined service provider.

12. The apparatus as claimed in claim 11 in which said access settings are received from an access node and said end user equipment is separate to said access node or said end
25 user equipment is integrated with said access node.

13. A computer program product comprising computer readable executable code for:
receiving at an end user equipment access settings
30 wherein said access settings are for a predetermined service provider;
storing said access settings in said end user equipment;
and

receiving at said end user equipment configuration settings from said predetermined service provider wherein said configuration settings configure said end user equipment to receive a service provided by said predetermined service provider.

5

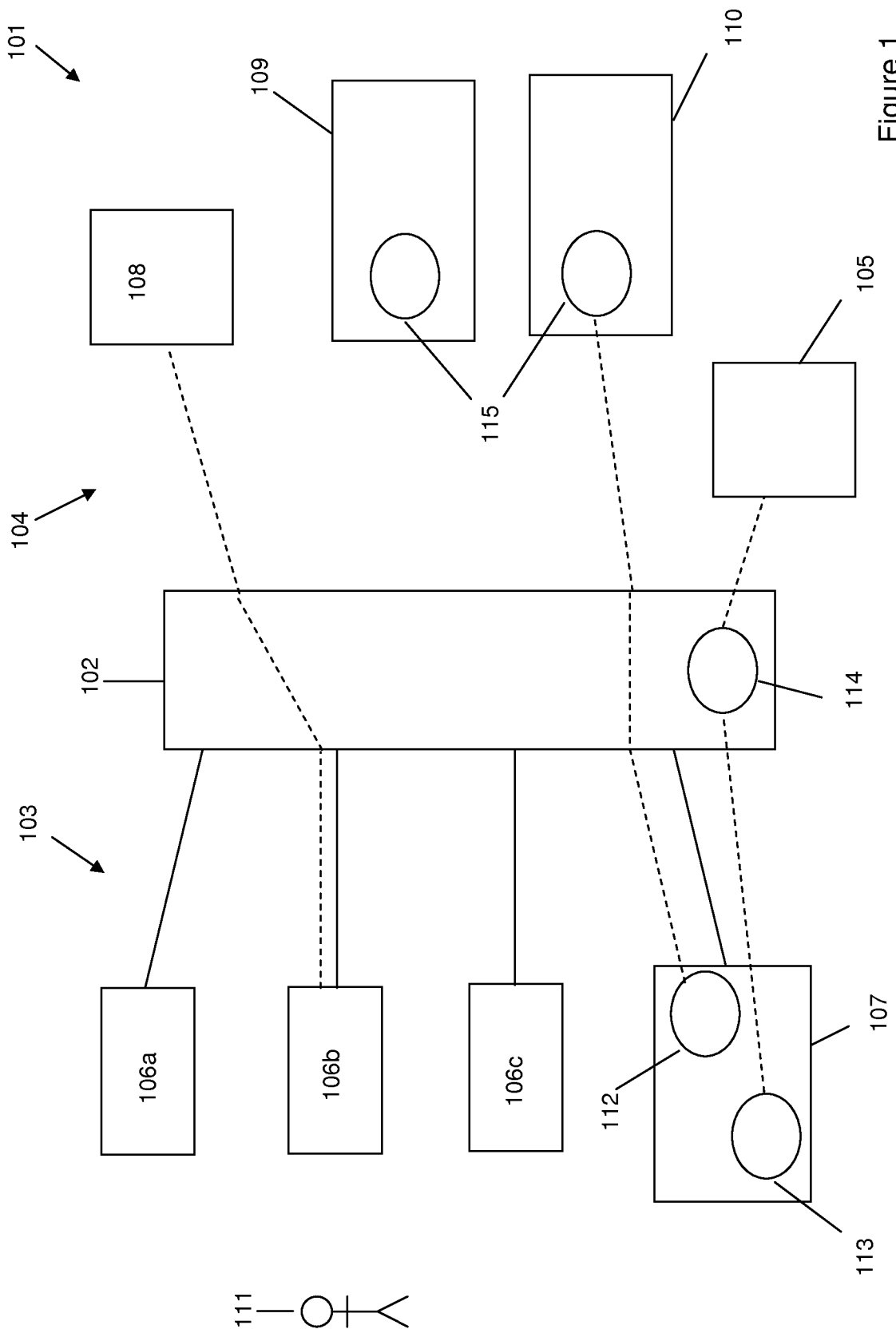


Figure 1

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/068015

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H04L29/08 H04W8/18
 ADD.

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)
 H04L H04W

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, COMPENDEX, INSPEC, IBM-TDB, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 937 009 A1 (KONINKL KPN NV [NL]) 25 June 2008 (2008-06-25) * abstract paragraph [0001] - paragraph [0048] figures 1-4	1-13
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X	US 2005/108133 A1 (BALASUBRAMANIAN MUKUND [US] ET AL) 19 May 2005 (2005-05-19) * abstract paragraph [0001] - paragraph [0117] figures 1-9	1-13
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

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Date of the actual completion of the international search

7 December 2010

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15/12/2010

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/068015

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 2007/254634 A1 (COSTA-REQUENA JOSE [FI] ET AL) 1 November 2007 (2007-11-01) * abstract paragraph [0001] - paragraph [0105] figures 1-8 -----	1-13
X	US 2009/285166 A1 (HUBER KURT DONALD [US] ET AL) 19 November 2009 (2009-11-19) * abstract paragraph [0001] - paragraph [0193] figures 1-17 -----	1-13

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International application No

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