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U.S. Patent 10,511,961

U.S. Patent 10,511,961 ("*Redwood*" or the "patent-at-issue") was filed on April 25, 2018 and claims priority on January 14, 2003. The patent relates to the address management in the wireless LAN environment for a mobile user to come from other networks. It could be used for the interworking of the WLAN to the public radio networks, e.g. 3G networks, or WLANs using other radio technologies or in another administrative domain. The invention is used by the WLAN and the inter-worked network as well as the mobile terminal, for the address allocation, configuration, tunneling set-up, etc., so that the mobile terminal is able to access services it subscribed to in the WLAN.

The primary reference, U.S. Patent App. 2004/0088385 ("*Hexago*"), was filed on November 1, 2002 and claims priority on the same date. The patent to a method and apparatus for connecting Internet Protocol version 4 (IPv4) devices through an Internet Protocol version 6 (IPv6) network using a tunnel setup protocol. The tunnel setup protocol is a control channel for negotiating tunnel configuration parameters and exchanging tunnel configuration data between a tunnel client and a tunnel broker server. The invention permits the automated establishment of IPv4-in-IPv6 tunnels, which facilitates the support of IPv4 nodes and networks in IPv6 networks and ameliorates the transition from IPv4 to IPv6.

The secondary reference, U.S. Patent 6,275,693 ("*Google*"), was filed on November 22, 1999 and claims priority on the same date. The patent relates to mobile wireless communication systems that provide access to wide area public information networks. The invention assures that wireless application service provisioning is available to wireless mobile service subscribers, independent of which type of wireless mobile communication service or carrier they are using. A mobile communication device communicates over a wireless bearer network. To provision wireless application services, the mobile communication device contacts a provisioning proxy over the wireless bearer network, which in turns contacts a provisioning center over a public network. A provisioning tunnel is then established between the provisioning center and the mobile communication device. Once the provisioning tunnel is set up, the user of the mobile communication device can subscribe to, or unsubscribe from wireless application services.

Patent Owner is now on notice that claims of this patent are invalid; as a result, any new or continued assertion of this patent may be considered meritless or brought in bad faith. *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 572 U.S. 545, 554 (2014). Such considerations are relevant to whether a case is deemed "exceptional" for purposes of awarding attorneys' fees. 35 U.S.C. § 285; *see, e.g., WPEM, LLC v. SOTI Inc.*, 2020 WL 555545, at *7 (E.D. Tex. Feb. 4, 2020), *aff'd*, 837 F. App'x 773 (Fed. Cir. 2020) (awarding fees for an exceptional case where plaintiff "failed to conduct an invalidity and enforceability pre-filing investigation"); *Energy Heating, LLC v. Heat On-The-Fly, LLC*, 15 F.4th 1378, 1383 (Fed. Cir. 2021) (affirming award of fees where, *inter alia*, the plaintiff knew "that its patent was invalid").

A sample claim chart comparing claim 1 of *Redwood* to *Hexago* and *Google* is provided below.

US10511961 (" <i>Redwood</i> ")	A. US20040088385 (" <i>Hexago</i> ") B. US6275693 (" <i>Google</i> ")
<p>1. A method comprising:</p> <p>sending, from a mobile terminal, a tunneling setup request message to a network element of a first wireless communications network via a second wireless communications network,</p> <p>the tunneling setup request message requesting a service from the second wireless communications network,</p> <p>and;</p>	<p>A. US20040088385</p> <p>1. A method for connecting an IPv4 device through an IPv6 network to an IPv4 node in an IPv4 network using a tunnel setup protocol, comprising steps of: sending a message from a tunnel client in the IPv6 network to a tunnel broker server in the IPv6 network to establish a control channel with the tunnel broker server; . . . <i>Hexago</i>, claim 1</p> <p>"In this example, the tunnel client 50 is a mobile device, such as a cellular telephone, a personal data assistant (PDA) or a laptop computer, which serves as a router for an IPv4 subnetwork." <i>Hexago</i>, p. 5, par. 0051</p> <p>"The tunnel client 50 then sends a tunnel request message via the control channel 40 (step 126) to the tunnel broker server 60. The tunnel request message may include requests for an IPv4 prefix, a DNS delegation, router peering, etc., as will be explained below in more detail. On receipt of the tunnel request message, the tunnel broker server 60 determines whether it is provisioned to offer the service as requested (step 128)." <i>Hexago</i>, p. 1, par. 0037</p> <p>B. US6275693</p> <p>1. A method for performing wireless application service provisioning for a mobile communication device, the mobile communication device operating over a wireless mobile communication system, the method comprising: requesting a provisioning tunnel between the mobile communication device and a provisioning center, the request being communicated to a provisioning proxy, the provisioning proxy being part of the wireless mobile communication system; forwarding the request for a provisioning tunnel from the provisioning proxy to a provisioning center over a public network; . . . <i>Google</i>, claim 1</p> <p>"The provisioning center is connected to a public network, such as the Internet, and is addresses by conventional means such as internet protocol (IP) addressing." <i>Google</i>, col. 2, lines 49-52</p>

<p>(cont.) 1. A method comprising:</p> <p>sending, from a mobile terminal, a tunneling setup request message to a network element of a first wireless communications network via a second wireless communications network,</p> <p>the tunneling setup request message requesting a service from the second wireless communications network, and;</p>	<p>"Referring now to FIG. 2, there is shown a flow chart diagram 200 of a method for provisioning wireless application service for a wireless mobile communication device, in accordance with the invention. . . the mobile communication device contacts the provisioning proxy (206) over the wireless communication system and requests a tunnel to the provisioning center." <i>Google</i>, col. 4, lines 32-46</p>
<p>receiving, by the mobile terminal, a tunneling setup response message from the network element of the first wireless communications network via the second wireless communications network,</p> <p>the tunneling setup response message comprising address information for the mobile terminal and service parameters for a tunnel,</p>	<p>A. US20040088385 1. . . . receiving from the tunnel broker server, via the control channel, any one of: an acceptance of the request with a specification of information respecting the tunnel configuration parameters desired by the tunnel client; <i>Hexago</i>, claim 1</p> <p>"The tunnel broker server 60 then returns a tunnel answer message (step 220) which includes tunnel configuration parameters, including IPv6 and IPv4 addresses for both the tunnel broker server and the tunnel client endpoints as well as any other information requested by the tunnel client 50 in step 216." <i>Hexago</i>, p. 5, par. 0045</p> <p>"In this example, the tunnel client 50 is a mobile device, such as a cellular telephone, a personal data assistant (PDA) or a laptop computer, which serves as a router for an IPv4 subnetwork. As illustrated, the mobile device in a first location functions as a tunnel client 50 a having an IPv6 address (Add 1). In the first location, the mobile tunnel client 50 a commences and performs a tunnel setup protocol session with the tunnel broker (step 330) and in the course of the tunnel setup protocol session receives an IPv4 prefix from the tunnel broker server 60. In this example, the prefix received is "1.1.1.0/28". As is well known in the art, this prefix is known as a "/28" prefix which permits the tunnel client router to assign session addresses to IPv4 devices in the domain it controls, in a manner well known in the art, for example as being a Dynamic Host Configuration Protocol (DHCP) server." <i>Hexago</i>, p. 5-6, par. 0051</p>

(cont.)

receiving, by the mobile terminal, a tunneling setup response message from the network element of the first wireless communications network via the second wireless communications network,

the tunneling setup response message comprising address information for the mobile terminal and service parameters for a tunnel,

B. US6275693

"The provisioning proxy then contacts the HLR (208) to obtain the address of the appropriate provisioning center. This is performed by reading the service provisioning block of the HLR, which is a data field included in the HLR record for **the particular mobile communication device making the request**, and is in addition to the typical data kept in an HLR. Once the provisioning proxy has the information from the HLR, the provisioning proxy contacts the provisioning center (210) using the temporary tunnel identifier (ID) to identify the requesting mobile communication device. The **provisioning center, upon receiving the request, assigns a unique tunnel identifier (212) to identify the requesting mobile communication device, and initiates a tunnel** between the mobile communication device and the provisioning center. **This accomplishes the bootstrapping for wireless network access.** . . . In addition to the provisioning of service, the provisioning center **provides the network address of the wireless network access gateway.**" *Google*, col. 4, line 46 through col. 5, line 8

"When the mobile communication device is properly provisioned, the **wireless network access gateway provides a access point to the desired network.**" *Google*, col. 3, lines 62-64

"**A link is established between the subscriber mobile communication device and the provisioning center via a tunnel**, meaning that the **communication protocol data is encapsulated in the wireless protocol**, over the air interface between the subscriber's mobile communication device and the wireless bearer network." *Google*, col. 2, lines 52-57

"The **provisioning center is connected to a public network, such as the Internet**, and is addresses by conventional means such as internet protocol (IP) addressing." *Google*, col. 2, lines 49-52

wherein, **when the mobile terminal is engaged in an active session prior to sending the tunneling setup request message,**

the address information comprises a same address previously allocated to the mobile terminal for the active session.

A. US20040088385

2. The method as claimed in claim 1 wherein after the control channel is established with the tunnel broker server, the method further comprises steps of: sending from the tunnel client to the tunnel broker server **a version of a tunnel session protocol installed on the tunnel client;** . . . *Hexago*, claim 2

"In the first location, the mobile tunnel client 50 a commences and performs a tunnel setup protocol session with the tunnel broker (step 330) and in the course of the tunnel setup protocol session receives an IPv4 prefix from the tunnel broker server 60. In this example, the prefix received is "1.1.1.0/28". As is well known in the art, this prefix is known as a "/28" prefix which permits the tunnel client router to assign session addresses to IPv4 devices in the domain it controls, in a manner well known in the art, for example as being a Dynamic Host Configuration Protocol (DHCP) server. After the tunnel is established in step 330, the IPv4 node 72 is enabled to communicate with the IPv4 node 74 (steps 332-336) by sending and receiving IPv4 packets in native format. Subsequently, the mobile tunnel client 50 moves to location 50 b and its service provider in the IPv6 network assigns a new IPv6 address (Add 2). **Consequently, a new tunnel must be established. The tunnel client 50 b therefore initiates and performs the tunnel setup protocol session (step 338) with the tunnel broker server 60 and receives the same IPv4 prefix "1.1.1.0/28"**. Consequently, a new tunnel is established between the mobile tunnel client 50b and the tunnel broker server 60 that permits the IPv4 node 72 to again send IPv4 packets in native format to the IPv4 node 74 (steps 340-344). **By receiving the same IPv4 prefix, the IPv4 node keeps its same IPv4 address."** *Hexago*, p. 6, par. 0051