

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC., and APPLE INC.,
Petitioner,

v.

IXI IP, LLC,
Patent Owner.

Case IPR2015-01443
Patent 7,295,532 B2

Before KRISTINA M. KALAN, ROBERT J. WEINSCHENK, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

KALAN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Apple Inc. (collectively “Petitioner”) filed a Petition (Paper 2, “Pet.”) to institute an *inter partes* review of claims 1, 4, 5, 7–10, 12, 14–16, and 23–24 of U.S. Patent No. 7,295,532 B2 (Ex. 1001, “the ’532 patent”) pursuant to 35 U.S.C. §§ 311–319. IXI IP, LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). We instituted an *inter partes* review of claims 1, 4, 5, 7–9, 12, 14–16, and 23–24 on certain grounds of unpatentability alleged in the Petition (Paper 8, “Dec.”). After institution of trial, Patent Owner filed a Patent Owner Response (Paper 14, “PO Resp.”) and Petitioner filed a Reply (Paper 18, “Reply”). An oral hearing was held on September 15, 2016. A transcript of the hearing has been entered into the record. Paper 26 (“Tr.”).

The Board has jurisdiction under 35 U.S.C. § 6. In this Final Written Decision, issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73, we determine that Petitioner has shown by a preponderance of the evidence that all claims for which trial is instituted, namely, claims 1, 4, 5, 7–9, 12, 14–16, and 23–24, are unpatentable.

II. BACKGROUND

A. Related Matters

The parties indicate that the ’532 patent is the subject of the following district court proceedings: *IXI Mobile (R&D) Ltd. v. Samsung Electronics Co.*, Case No. 3:15-cv-03752-HSG (N.D. Cal.); *IXI Mobile (R&D) Ltd. v. Apple, Inc.*, Case No. 4:15-cv-03755-PJH (N.D. Cal.); and *IXI Mobile (R&D) Ltd. v. Blackberry Ltd.*, Case No. 3:15-cv-03754-RS (N.D. Cal.). Pet. 1–2; Paper 5, 1–2, Paper 7, 1–2.

B. The '532 Patent

The '532 patent describes a system, device and computer readable medium that monitors and reconfigures a local area network ("LAN") by a wide area network ("WAN") operator. Ex. 1001 at [54], Abstract. The '532 patent is directed to "a hand held device for providing communication between a wide area network and a wireless local area network." *Id.* at 1:61–63. Figure 1, reproduced below, illustrates an exemplary system of the '532 patent. *Id.* at 4:55–56.

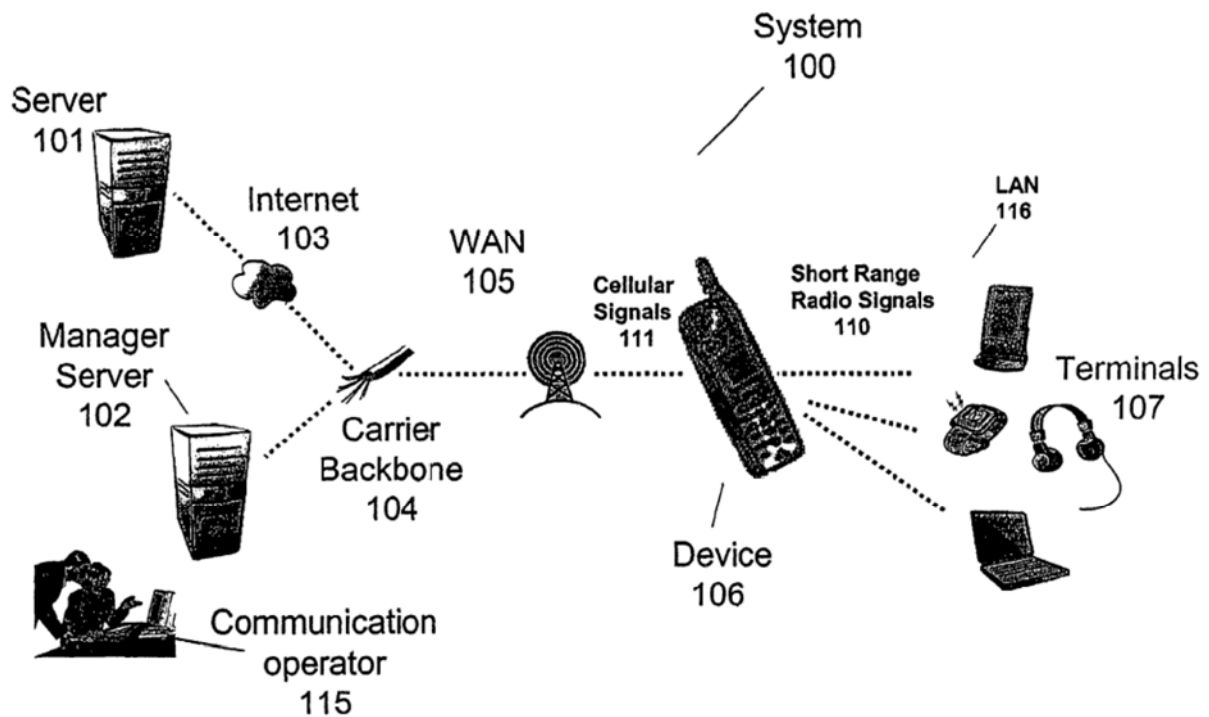


Fig. 1

Figure 1 above shows wireless device 106 and one or more terminals 107 communicating via short-range radio signals 110 to form LAN 116. *Id.* at 5:30–35. Figure 1 also shows WAN 105 coupled to device 106; WAN 105 includes a cellular network transmitting and receiving cellular signals 111. *Id.* at 5:52–55. WAN 105, carrier backbone 104, and manager server 102

are, singly or in combination, a telecommunication network managed and monitored by operator 115. *Id.* at 5:62–65. WAN 105 is shown as being coupled to wireless carrier internal network or carrier backbone 104; carrier backbone 104 may be coupled to manager server 102 or Internet 103. *Id.* at 6:20–25. In one embodiment, servers 101 and 102 provide information to terminals 107 by way of device 106. *Id.* at 6:26–29. Microrouter 404 of device 106 “enables an IP based network between the device 106 and terminals 107.” *Id.* at 8:29–30. Software components, or plug-ins 406, may be added to microrouter 404, using software components called hooks 590. *Id.* at 8:33–36, 45–49. A remote operator on WAN 105 is able to load software on device 106 to provide LAN network services to devices on LAN 116. *Id.* at 5:10–13, 10:11–17.

C. Illustrative Claim

Claim 1 of the '532 patent is reproduced below:

1. A hand-held device for enabling communication between one or more devices connected to one or more cellular networks and one or more devices connected to a wireless local area network, comprising:

a) a first transceiver to communicate with the one or more devices connected to said one or more cellular networks by sending and receiving cellular signals, the first transceiver having a cellular network address;

b) a second transceiver to communicate with the one or more devices connected to the wireless local area network by sending and receiving short-range radio signals;

c) a storage device to store:

c.1. a router software component to transfer a plurality of data packets between the one or more devices connected to the one or more cellular networks and the one or more devices connected to the wireless local area network by the cellular signals and the short-range radio signals; and

c.2. an interface software component to add a first network service software component that provides one or more network services to the wireless local area network, the first network service software component loaded into the storage device from the one or more devices connected to the one or more cellular networks; and one or more processors connected to the storage device to process the cellular signals and the short-range radio signals, wherein the cellular network includes a plurality of public IP addresses and the wireless local area network includes a plurality of private IP addresses, and wherein the router software component translates a first IP address in the plurality of public IP addresses to a second IP address in the plurality of private IP addresses.

Ex. 1001, 16:40–17:7. Claims 4, 5, 7–10, 12, 14–16, and 23–24 all depend, directly or indirectly, from claim 1.

D. Prior Art References Relied Upon by Petitioner

1. PCT Pub. No. WO 01/76154 A2 to Marchand, published October 11, 2001 (“Marchand”) (Ex. 1005);
2. Dan Decasper *et al.*, *Router Plugins A Software Architecture for Next Generation Routers*, *Proceedings of ACM SigComm '98 Conference*, 28 COMP. COMM. REV. No. 4, 229–240 (October 1998) (“Router Plugins”) (Ex. 1006);
3. U.S. Patent No. 6,622,017 B1 to Hoffman, issued September 16, 2003 (“Hoffman”) (Ex. 1007).
4. IEEE Std. 802.11b-1999, *Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Higher-Speed Physical Layer Extension in the 2.4 GHz Band*, IEEE-SA Standards Board (published January 20, 2000) (“802.11b”) (Ex. 1008);
5. P. Srisuresh & M. Holdredge, *RFC 2663: IP Network Address Translator (NAT) Terminology and Considerations*, The Internet Society (August 1999) (“RFC 2663”) (Ex. 1009); and
6. U.S. Patent No. 6,963,912 B1 to Schweitzer *et al.*, issued November 8, 2005 (“Schweitzer”) (Ex. 1011).

E. Instituted Grounds of Unpatentability

We instituted *inter partes* review of claims 1, 4, 5, 7–9, 12, 14–16, and 23–24 of the '532 patent on the following grounds:

References	Basis	Claim(s) Challenged
Marchand, Router Plugins, and Hoffman	§ 103	1, 4, 5, 8, 12, 14, and 23
Marchand, Router Plugins, Hoffman, and 802.11b	§ 103	7
Marchand, Router Plugins, Hoffman, and RFC 2663	§ 103	9
Marchand, Router Plugins, Hoffman, and Schweitzer	§ 103	15, 16, and 24

In support of its challenges, Petitioner relies on the Declaration of Dr. Sayfe Kiaei (Ex. 1003). Patent Owner relies on the Declaration of Dr. Narayan Mandayam (Ex. 2201).

III. ANALYSIS

A. Claim Interpretation

The Board interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. *See Cuozzo Speed Techs., LLC v. Lee*, 136 S.Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard); 37 C.F.R. § 42.100(b). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Only those terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy.

See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999).

In our Decision on Institution, we determined that the claim 1 phrase “software component . . . loaded . . . from the one or more devices connected to said one or more cellular networks” needed no express construction. Dec. 7–8. Patent Owner, in its Response, agrees that “a person of ordinary skill in the art would have understood this recitation without an explicit construction.” PO Resp. 11. We see no reason to modify our position in light of the record developed at trial. No other claim terms have been presented to us for construction, and we determine that no other claim terms require express construction.

B. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103¹ if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). A

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. Because the ’532 patent has an effective filing date before the effective date of the applicable AIA amendments, throughout this Decision we refer to the pre-AIA versions of 35 U.S.C. § 103.

decision on the ground of obviousness must include “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). The obviousness analysis “should be made explicit” and it “can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR*, 550 U.S. at 418. We analyze the asserted grounds of unpatentability in accordance with the above-stated principles.

We note that, regarding objective evidence of nonobviousness, Patent Owner has not put forth any evidence of secondary considerations of nonobviousness in this case.

C. Level of Skill in the Art

For the purpose of this Decision, we accept Petitioner’s undisputed contention that a person of ordinary skill in the art as of the critical date

would have had a Master’s of Science Degree in an academic area emphasizing electrical engineering, computer engineering, or computer science (or a similar technical Master’s Degree, or higher degree) with a concentration in communication and networking systems or, alternatively, a Bachelor Degree (or higher degree) in an academic area emphasizing electrical engineering, computer engineering, or computer science and having two or more years of experience in communication and networking systems. Ex. 1003 at 15. Additional education in a relevant field, such as computer science, computer engineering, or electrical engineering, or industry experience may compensate for a deficit in one of the other aspects of the requirements stated above.

Pet. 9–10. Patent Owner applied Petitioner’s definition in its Patent Owner Response. PO Resp. 10–11. The level of ordinary skill in the art is further

demonstrated by the prior art asserted in the Petition. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

D. Obviousness Analysis

1. Ground Based on Marchand, Router Plugins, and Hoffman

Petitioner challenges claims 1, 4, 5, 8, 12, 14, and 23 as obvious under 35 U.S.C. § 103 over Marchand, Router Plugins, and Hoffman. Pet. 12–42. Patent Owner disputes Petitioner’s contentions. PO Resp. 18–46.

a. Marchand

Marchand is directed to “an ad-hoc network and a gateway that provides an interface between external wireless IP networks and devices in the ad-hoc network.” Ex. 1005, 1:6–7. Figure 3 of Marchand is reproduced below:

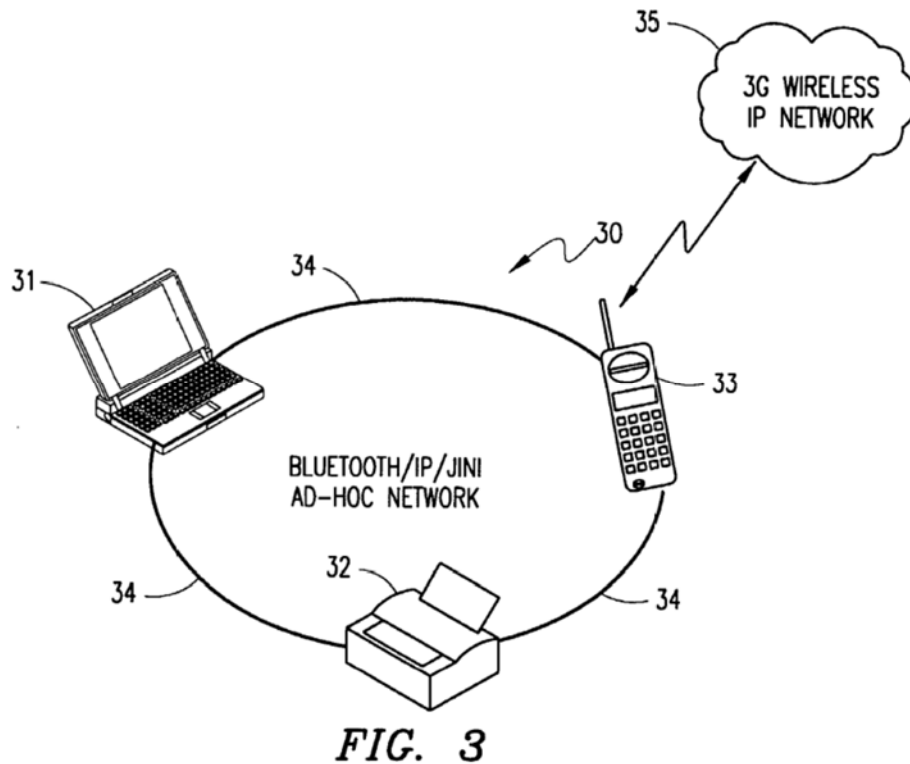


Figure 3 of Marchand illustrates “an ad-hoc network 30 utilizing Bluetooth, IP [Internet Protocol], and JINI technologies . . . to enable the use

of a gateway mobile phone.” *Id.* at 7:7–9. Ad-hoc network 30 includes laptop computer 31, printer 32, and mobile phone 33, which can communicate via Bluetooth radio link 34. *Id.* at 7:9–11. Mobile phone 33 acts “as a gateway between the ad-hoc network and a 3G wireless IP network 35 such as the General Packet Radio Service (GPRS) network.” *Id.* at 7:12–14. Regarding IP address translation, IP packets from the GPRS are received at mobile phone 33 through its public IP address, and then they are forwarded to the private IP address of the device on the ad-hoc network. *Id.* at 7:14–16. Mobile phone 33 also translates in the other direction for data going out of the ad-hoc network to the GPRS network. *Id.* at 7:16–17.

b. Router Plugins

Router Plugins is directed to a software architecture that can “dynamically upgrade router software in an incremental fashion” and that is designed to be compatible with operating systems of small and mid-sized routers. Ex. 1006, Abstract, 230 col. 1 ¶ 5. The router software architecture is based on implementation of specific algorithms in the form of modules called plugins. *Id.* at Abstract, 229 col. 2 ¶ 2. A software component called a Plugin Control Unit (“PCU”) manages plugins that are loaded into the kernel of a router. *Id.* at 231 col. 1 ¶ 2.

c. Hoffman

Hoffman is directed to over-the-air programming of wireless terminal features, namely, downloading software in the form of a plug-in module to a terminal device. Ex. 1007, at [54], Abstract. Hoffman includes a wireless communication terminal device 5, generally a digital cellular telephone, able to implement standard cellular telecommunication functions. *Id.* at 5:8–17. Hoffman’s terminal device 5 initially contains a blank “second section” of

programming memory, which is designed for storage of plugin feature programs or modules. *Id.* at 5:32–33. The second section is later occupied by selected software that is downloaded from hard media or by air-link. *Id.* at 5:43–6:14. Hoffman’s terminal device 5 includes processor 51 and flash memory 53. *Id.* at 12:48–55. It may also allow “a user to connect a laptop computer or other device to the terminal [device] 5, via wire or short-distance wireless link.” *Id.* at 13:33–39.

d. Petitioner’s Arguments

Petitioner argues one of ordinary skill in the art would have modified Marchand’s mobile gateway 33 to implement its routing and address translation functionality by utilizing the routing software technology described in Router Plugins, and would have included the PCU of Router Plugins in Marchand’s mobile gateway software architecture to “glue the individual plugins to the networking subsystem” as described in Router Plugins. Pet. 23–24. Petitioner further argues that, in view of Hoffman, a person of ordinary skill in the art would have modified Marchand’s plugin-enabled gateway 33 to download plugins over the cellular network in Marchand. *Id.* at 25. In addition, Petitioner contends a person of ordinary skill in the art would have understood that Marchand’s gateway would include a storage device and processor. *Id.* at 26–27 (citing Ex. 1003 ¶¶ 58–59). Petitioner relies on this purported understanding, together with Hoffman’s explicit disclosure of a storage device and processor, to teach those elements of the challenged claims. *Id.*

Regarding the combination of references, Petitioner argues one of ordinary skill in the art would have been motivated to implement the plugin-based software architecture of Router Plugins into Marchand because doing

so amounts to the use of a known technique to improve similar devices in the same way. *Id.* at 27–28 (citing Ex. 1003 ¶ 54). One of ordinary skill in the art, according to Petitioner, would have understood that Marchand’s mobile gateway 33 would have been made more “flexible and modular” by using the plugin-based routing software of Router Plugins. *Id.* at 28 (citing Ex. 1003 ¶ 54). Because both Marchand and Router Plugins describe devices that utilize software to route IP packets and perform network address translation, Petitioner argues, one of ordinary skill in the art would have understood that “Marchand’s mobile phone gateway 33 is the type of “small and mid-sized” router for which the Router Plugins software architecture was designed.” *Id.* (citing Ex. 1005 at Abstract; 1:5–7; 54:30–31; 55:9–13; Ex. 1006, 230, col. 1, ¶ 5; Ex. 1003 ¶ 55).

Petitioner also argues one of ordinary skill in the art would have been motivated to implement Hoffman’s cellular download of plugins into the mobile gateway of Marchand/Router Plugins, also as the use of a known technique to improve similar devices in the same way. *Id.* at 29 (citing Ex. 1003 ¶ 56).

e. Combination of Marchand and Router Plugins

i. Routing Layer Issue

Patent Owner argues, generally, that Petitioner “offers no explanation regarding how a person would implement the plugin-based software architecture of Router Plugins into the architecture described in Marchand.” PO Resp. 33. Patent Owner further argues the routing technologies taught by Marchand and Router Plugins “are fundamentally different and are not compatible because the routing technology in each reference is implemented in a different layer of the system network architecture.” *Id.* at 34. Referring

to Figure 4 of Marchand, Patent Owner argues that Marchand's routing and address translation functionality is implemented in the JINI technology layer 20 of its protocol stack (*id.* at 34 (citing Ex. 2201 ¶ 67–68)), whereas Router Plugins' functionality is implemented in the kernel of the operating system layer 18. *Id.* at 35 (citing Ex. 2201 ¶ 69). Accordingly, Patent Owner argues, the routing software technology of Router Plugins "cannot be implemented in Marchand's JINI technology layer without changing the fundamental operation of both Marchand and Router Plugin's routing software technology." *Id.* at 36.

Petitioner replies that Patent Owner's argument is "based on incorrect factual premises, and attempts to create a false dichotomy between Marchand and Router Plugins." Reply 2. More particularly, Petitioner argues, Marchand's Application Programming Interface ("API") routes *calls*, rather than IP *packets*. *Id.* at 2–3. Although Marchand discusses routing both calls and IP packets, only the routing of IP packets is relevant to the combinability of Marchand and Router Plugins, according to Petitioner. *Id.* at 3. Marchand uses Network Transport layer 17 to route IP packets, argues Petitioner, and not JINI layer 20 or Application layer 21. *Id.* (citing Ex. 1005, 7:14–16, 11:13–16).

Moreover, Petitioner argues, Router Plugins does not describe routing IP packets at the operating system layer, but rather, at the network layer. *Id.* at 4–5. Petitioner points to Dr. Mandayam's testimony as confirming that Router Plugins performs routing of IP packets (citing Ex. 1016, 145:15–24), and that routing of IP packets occurs at a network layer of the protocol stack (citing Ex. 1016, 21:21–22:2). *Id.* at 5–6; *see also* Tr. 15:19–24. Thus, Petitioner argues, because both Marchand and Router Plugins route IP

packets at the network layer, one of ordinary skill in the art would have been motivated to make Marchand's IP routing "more 'flexible and modular' by using the plugin-based router software of Router Plugins." *Id.* at 6 (citing Ex. 1003 ¶ 55).

We are persuaded by Petitioner's arguments in this regard. We understand Petitioner as premising the combinability of Marchand and Router Plugins on the routing of IP packets. Pet. 14 (Marchand's "mobile gateway 33 performs routing for IP packets"), 23 ("Marchand discloses a mobile phone gateway 33 that routes IP packets between a local area network and an external cellular network"); Reply 3. Petitioner relies on Router Plugins' "plugin-based routing software" to be "implemented in Marchand's mobile phone gateway 33 to implement various types of router functionality, such as routing of IP packets and IP address translation." Pet. 24. Indeed, Dr. Mandayam agrees that routing of IP packets is done by Marchand, and is done at a network layer of the protocol stack. Reply 3–4 (citing Ex. 1016, 21:21–22:2, 160:16–19; Ex. 2201 ¶¶ 34, 35). Dr. Mandayam also agrees that Router Plugins performs routing of IP packets, and that routing of IP packets occurs at a network layer of the protocol stack. *Id.* at 5–6 (citing Ex. 1016, 145:15–24, 21:21–22:2). We further agree with Petitioner's contention that, even though the Router Plugins routing framework fits within an operating system kernel, "Router Plugins does not describe routing IP packets at the operating system layer," but rather, performs routing of IP packets at a network layer of the protocol stack. *Id.* at 4–5 (citing Ex. 1006, 229 col. 2, 231 col. 2, Fig. 1). We credit Dr. Kiaei's testimony that one of ordinary skill in the art, understanding that both "Marchand and Router Plugins describe devices that utilize software to route IP packets and perform network address

translation,” would have been motivated to make Marchand’s IP routing “more ‘flexible and modular’ by using the plugin-based router software of Router Plugins.” Ex. 1003 ¶ 55. The enhanced routing of IP packets at the network layer, as demonstrated by Router Plugins, would have led one of ordinary skill in the art to consider the inclusion of Router Plugins’ technology to better the IP routing of Marchand, which also takes place at the network layer.

ii. Routing Redundancy Issue

Patent Owner further argues that Marchand teaches that the gateway’s Session Initiation Protocol (“SIP”) and H.323 technologies are implemented using JINI technology, and thus, Petitioner’s proposed scenario “would render Marchand’s SIP client redundant as both the SIP client and the plugin-based technology would be responsible for routing the same information.” PO Resp. 37.

Marchand and Router Plugins are compatible, Petitioner argues, because Marchand’s SIP client is implemented using APIs at Application layer 21, which is “separate and distinct from Marchand’s Network IP layer 17.” Reply 7. Thus, in Petitioner’s proposed combination, Marchand’s SIP client routes calls at Application layer 21 and Router Plugins’ software performs the “lower level functionality of routing IP packets at the Network Layer,” and each perform “their respective functions at different layers in the protocol stack.” *Id* (citing Pet. 16, 23, 24).

Patent Owner’s arguments on this issue appear to derive from its earlier argument that both IP packet routing and call routing occur at Application layer 21 in Marchand’s protocol stack. As explained above, we are persuaded by Petitioner’s arguments that routing of IP packets in the

proposed combination would take place in Network Transport layer 17, and we are persuaded by the evidence that Marchand's routing of calls would be performed by the SIP client in Application layer 21. Ex. 1016, 129:23–130:3. We are thus persuaded that Petitioner's proposed combination would allow the SIP's call routing and the routing of IP packets to coexist in a manner that would not render the SIP client redundant.

iii. Devices Issue

Patent Owner further argues that Marchand and Router Plugins are not directed to similar devices: Marchand is directed to a Bluetooth piconet that has been extended into an Internet Protocol wireless local area network, with a mobile phone configured to act as a gateway to provide a call control interface between the devices on the piconet and the wireless IP network, whereas Router Plugins is directed to modular software architecture for use in a modern, extended integrated services router. PO Resp. 37–38. According to Patent Owner, “[a] person of ordinary skill in the art would not have been motivated to combine the dedicated router technology in Router Plugins with Marchand's gateway, which only includes minimal routing functionality.” *Id.* at 38.

Petitioner faults Patent Owner for overlooking Marchand's disclosure of IP routing software, and the applicability of Router Plugins' software to such IP routing. Reply 8. According to Petitioner, Router Plugins' description of its software as being a perfect fit for “small and mid-sized routers” would include Marchand's mobile phone. *Id.* (citing Pet. 16, 28). Petitioner further points to Router Plugins' disclosure of its software in “NetBSD,” which Petitioner alleges was available on hand-held devices during the relevant time frame. *Id.* at 9 (citing Ex. 1006, Abstract).

On this record, the disclosure of Router Plugins does not rule out its applicability to a system such as Marchand's. Petitioner has demonstrated Router Plugins' reference to "small and mid-sized routers" would have led one of ordinary skill in the art to understand that Router Plugins' software architecture could be included in Marchand's mobile gateway 33. Pet. 16, 28 (citing Ex. 1003 ¶¶ 35, 55). Petitioner's explanation of NetBSD, disclosed in Router Plugins' Abstract, also supports its argument that Router Plugins' software architecture could be included in a mobile phone. Reply 9. Patent Owner's arguments against the combination appear to be directed to the purported mismatch of the size and scope of the respective devices, but there does not appear to be an incompatibility based on the record before us. Marchand's gateway, although housed in mobile phone, nevertheless features router functionality that could be enhanced by the improvements of Router Plugins. Ex. 1003 ¶¶ 50–55.

f. Combination of Marchand, Router Plugins, and Hoffman

i. Compatibility of Router Plugins and Hoffman

Regarding the combination of Marchand and Router Plugins with Hoffman, Patent Owner argues that a "person of ordinary skill in the art would not have been motivated to combine Hoffman's download of plugins into a Marchand/Router mobile gateway because there is no teaching in the references regarding how one would implement such a combination." PO Resp. 39. Specifically, because Router Plugins uses a PCU and an Association Identification Unit ("AIU"), and Hoffman's architecture does not use these components, a person of ordinary skill in the art would not have considered implementing the architecture of Hoffman into a device already using the Router Plugins architecture, Patent Owner argues. *Id.* at 39–40.

Patent Owner also argues that Router Plugins loads plugins directly into the kernel space, whereas Hoffman implements plugins in user mode/space. *Id.* at 40.

Petitioner replies that Patent Owner mischaracterizes Petitioner's proposed grounds of unpatentability and the role Hoffman plays in the proposed combination. Reply 10. Specifically, Petitioner argues that the implementation of particular software components or even the mobile phone software architecture are already disclosed in the Marchand/Router combination, and therefore Hoffman is not relied upon for those features. *Id.* (citing Pet. 27–30, 23–27). Rather, Petitioner argues, Hoffman is relied upon for “teaching that the plugins of Marchand/Router can be downloaded over Marchand's cellular connection.” *Id.* at 11 (citing Pet. 29).

The Petition supports Petitioner's assertion that it relies upon Hoffman for its teaching that plugins can be downloaded over a cellular connection. Pet. 29 (discussing implementing “Hoffman's cellular download of plugins into the Marchand/Router combination's mobile gateway”), 30 (“Hoffman's over-the-air programming would have enabled a user of Marchand's mobile phone gateway 33 to dynamically and quickly add or update features to the gateway 33”). In this instance, Petitioner does not appear to rely on Hoffman for any elements of the architecture already established by the Marchand/Router Plugins combination. Tr. 18:20–19:3. Importantly, “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of a primary reference.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). The architecture of Hoffman need not be imported wholesale into the structure of Marchand/Router Plugins, and the feature of Hoffman upon which Petitioner relies here is compatible

with the structure of Marchand/Router Plugins. Pet. 29–30; Reply 11. Given this, and in the absence of persuasive evidence to the contrary, we agree with Petitioner’s position on this issue.

ii. *Compatibility of Marchand and Hoffman*

Patent Owner argues that the architecture of Hoffman has compatibility issues with the architecture of Marchand, in that Hoffman “also describes a plugin architecture which is written to the program interface specification of the kernel of the operating system.” PO Resp. 40. Namely, Patent Owner argues, “a person of ordinary skill in the art would not have known how to modify Marchand’s protocol stack to successfully implement the teachings of Hoffman.” *Id.*

Petitioner replies, again, that Patent Owner mischaracterizes Marchand and Petitioner’s proposed grounds of unpatentability. Reply 12. Specifically, Petitioner argues that Marchand’s protocol stack is already equipped to handle cellular communications, so Patent Owner’s arguments regarding modifying Marchand’s protocol stack to implement Hoffman’s plugin architecture are irrelevant. *Id.* (citing Ex. 1003 ¶ 26).

As discussed in the section concerning compatibility of Router Plugins and Hoffman, above, we understand Petitioner’s reliance on Hoffman to be limited to Hoffman’s over-the-air programming feature, rather than any elements of its architecture. As acknowledged by both parties, Hoffman and Marchand both download software updates over a cellular network. Pet. 25–26, 29–30; PO Resp. 30–31; Ex. 2201 ¶¶ 81, 83; Reply 12–13; Ex. 1005, 13:16–19. As Petitioner’s proposed combination does not require bodily incorporation of Hoffman’s architecture into the system of Marchand/Router

Plugins, *see In re Keller*, 642 F.2d at 425, we are persuaded by the evidence before us that the references are otherwise compatible.

g. Claims 4 and 5

Claims 4 and 5 depend from claim 1, and recite, respectively, “wherein the one or more cellular networks are connected to a corporate network” and “wherein the one or more cellualr [sic] networks are connected to a private IP network.” Ex. 1001, 17:12–17. Regarding claim 4, Petitioner argues that the combination of Marchand, Router Plugins, and Hoffman “discloses a data network operated by the telecommunications carrier (a corporate network) that is connected, via the intermediate [interworking function] IWF equipment, to a cellular network.” Pet. 38. Petitioner also points to Marchand’s ad-hoc local network 30 as an example of a corporate network connected to a cellular network, concluding that the Marchand, Router Plugins, and Hoffman combination “discloses several examples of a corporate network that is indirectly coupled to the cellular network.” *Id.* Regarding claim 5, Petitioner points to several examples of a cellular network connected to a private IP network, such as Hoffman’s “private data network operated by the carrier, shown as an IP network 35” and Marchand’s “networks in the home,” “control networks such as security surveillance systems and temperature-control thermostats,” and local ad-hoc network 30 that uses private IP addresses for its devices. *Id.* at 39.

Patent Owner argues that the combination of Marchand, Router Plugins, and Hoffman “would render one or more of the asserted references inoperable for its intended purpose.” PO Resp. 41. Patent Owner challenges Petitioner’s reliance on Hoffman’s private data network, stating that the connection to a private data network as described in Hoffman would conflict

with the teachings of Marchand. *Id.* at 41–42. Particularly, Patent Owner argues, “Hoffman’s use of IWF equipment to provide an interface to the internet or a private data network conflicts with Marchand’s description of the mobile gateway and the mobile gateway’s call control service” and “Hoffman’s IWF equipment would provide a redundant operation that introduces a conflicting IP address if combined with Marchand.” *Id.* at 43. Patent Owner also argues that “claims 4 and 5 refer to corporate and private IP networks, respectively, that are located on the WAN,” and thus, “Petitioner’s alternative argument is also deficient.” *Id.* at 44.

Petitioner replies, first, that Hoffman’s over-the-air download of plugins to Marchand’s cellular network is not limited to specific equipment. Reply 13. Petitioner also argues that these references could have been combined so that Hoffman’s over-the-air programming does not require Hoffman’s IWF equipment, as Marchand’s cellular connection would provide a connection to the corporate/private network of Hoffman’s carrier or manufacturer. *Id.* at 13–14. Second, Petitioner argues that claims 4 and 5 only require a connection between cellular and corporate/private IP networks and do not specify that the corporate/private IP network must be located on the WAN. Reply 14–15. According to Petitioner, Marchand’s LAN 30 is a corporate/private IP network that is connected to cellular network 35 via mobile gateway 33, thereby satisfying claims 4 and 5. *Id.* (citing Pet. 38–39).

As above, we accept Petitioner’s reliance on Hoffman for its teaching of over-the-air programming and a corporate/private IP network connected to a cellular network; we also agree with Petitioner that the IWF equipment of Hoffman does not have to be bodily incorporated into the architecture already present in the Marchand and Router Plugins combination. Accordingly, we

accept as persuasive Petitioner's argument that Marchand's cellular connection would provide a connection to the corporate/private network of Hoffman's carrier or manufacturer. Pet. 37–39; Reply 14. Regarding Petitioner's second argument that claims 4 and 5 only require a connection between cellular and corporate/private IP networks, we agree that the claims, as written, do not require that the corporate/private IP network be located on the WAN. Although the specification discusses examples of corporate networks and private IP networks that are located on the WAN, these examples are characterized as: “According to still another embodiment;” “In an embodiment;” and “In this scenario.” Ex. 1001, 2:13–15; 6:3–6; 14:26–28. They are not identified as being exclusive, nor need they be read as such. *See Sjolund v. Musland*, 847 F.2d 1573, 1582 (Fed. Cir. 1988) (“[T]he claims define the invention. . . . [L]imitations from the specification are not to be read into the claims.”). The claims do not impose restrictions on and the specification does not impart additional required characteristics to the “corporate network” or the “private IP network.” Similarly, having considered the descriptions of various connections in the specification, we are not persuaded that the term “connected” should be read so narrowly as to require a particular type of connection. Petitioner's reliance on Marchand to disclose LAN 30 (i.e., either private or corporate IP network) connected to cellular network 35 satisfies the limitations of claims 4 and 5.

h. Claim 8

Claim 8 requires “wherein the router software component includes a network address translator (‘NAT’) software component to translate between the cellular network address and a first wireless local area network address.” Ex. 1001, 17:24–28. To disclose a router software component that includes a

network address translation software component, Petitioner relies on Marchand's mobile gateway 33 performing network address translation by receiving IP packets from public network 35 through its public IP address, forwarding them to the private IP address of the destination device, and translating them in the other direction for data going out of local network 30 to public network 35. Pet. 40. Petitioner posits that the routing and address translation functionality of gateway 33 is implemented using the routing software technology of Router Plugins. *Id.*

Patent Owner argues that Marchand fails to disclose this claim element, and teaches away from using a NAT software component.² PO Resp. 44. Marchand, according to Patent Owner, teaches address translation using an API, and expressly provides "that a NAT should not be used." *Id.* at 45 (citing Ex. 2201 ¶ 51). Specifically, Patent Owner argues that Marchand "discourages a person of ordinary skill in the art from utilizing NAT in the Marchand's mobile phone for providing call control services so as to avoid the IP address mismatch that 'creates problems for real-time applications such as [Voice-over-IP (VoIP)].'" *Id.* at 46.

Petitioner replies that Marchand uses an API to supplement NAT and resolve problems caused by NAT, not as a substitute for NAT. Reply 17 (citing Ex. 1005, 11:17–12:3). As explained by Petitioner, Marchand uses NAT for non-real-time applications; for real-time applications, it uses API to resolve any IP address mismatches introduced by NAT. *Id.* Additionally,

² Even though both parties use the acronym "NAT" to refer to a "network address translator," Marchand actually uses the acronym "NAT" to refer to a "National Access Translator." See Ex. 1005, 11:23. Given an opportunity at the oral hearing to explain if there were any meaningful differences in this terminology, Patent Owner's counsel did not offer any. See Tr. 36:11–37:8.

Petitioner argues that nothing in the subject patent precludes the NAT software component itself from being implemented as an API. *Id.* at 17–18.

Petitioner relies on Marchand and Router Plugins to teach the router software component that transfers data packets. Pet. 33. This router software component, per claim 1, also translates a first IP address to a second IP address. Petitioner identifies that Marchand’s mobile gateway 33 translates IP addresses for data being transmitted from local network 30 and for data being received at local network 30. *Id.* at 37 (citing Ex. 1005, 7:14–17). In addition, Dr. Mandayam testifies that address translation is done at the gateway in Marchand. Reply 16 (citing Ex. 1016, 147:5–7, 152:25–153:1). Regardless of whether this address translation is performed by a NAT or an API translator, Marchand teaches a network address translator software component located on the gateway mobile phone. Ex. 1005, 11:17–12:3. We also agree with Petitioner that the use of an API translator for certain real-time applications would have been viewed as “as a supplement to NAT [and] not a substitute for NAT.” Reply 17. For these reasons, Petitioner has established that Marchand teaches a “network address translator software component.”

i. Claims 12, 14, and 23

Petitioner observes that Patent Owner does not raise separate challenges to claims 12, 14, and 23. Reply 1 n.1. In considering Patent Owner’s arguments to the challenged claims, we reconsider Petitioner’s challenges to those claims based on our standard for final decisions, and are persuaded that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 12, 14, and 23 would have been obvious over the combination of Marchand, Router Plugins, and Hoffman.

Therefore, based on the entire record before us, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claims 1, 4, 5, 8, 12, 14, and 23 would have been obvious over the combination of Marchand, Router Plugins, and Hoffman.

2. Ground Based on Marchand, Router Plugins, Hoffman, and 802.11b

Petitioner challenges claim 7 as obvious under 35 U.S.C. § 103 over Marchand, Router Plugins, Hoffman, and 802.11b. Pet. 43–45. Patent Owner disputes Petitioner’s contentions. PO Resp. 46–49. Claim 7 depends from claim 1, and further provides “wherein the wireless local area networks include a 802.11 wireless local area network.” Ex. 1001, 17:21–23.

a. 802.11b

802.11b discloses a standard for implementation of a High Rate extension of the PHY (physical layer) for the DSSS (Direct Sequence Spread Spectrum) system that builds on existing data rate capabilities. Ex. 1008, 11 ¶¶ 2–3. Clause 18, in which this 802.11b standard implementation is discussed, indicates that it builds on the data rate capabilities as described in Clause 15 of IEEE Std. 802.11, 1999 Edition. *Id.* 802.11b discloses providing higher speed extension to the DSSS system and improvement to the performance the radio frequency LAN system via a number of optional features. *Id.* ¶ 3.

b. Analysis

Petitioner argues one of ordinary skill in the art would have modified the Marchand/Router Plugins/Hoffman combination using the 802.11b standard “to provide higher-rate and longer-range local area wireless communication.” Pet. 43–44 (citing Ex. 1003 ¶ 62). Petitioner further argues one of ordinary skill in the art would have been motivated to make such a

modification, which amounts to “simple substitution of one known element for another to obtain predictable results.” *Id.* at 44 (citing Ex. 1003 ¶ 63). Specifically, Petitioner argues one of ordinary skill in the art would have understood that either Bluetooth or 802.11b could have been used, but that 802.11b technologies provided certain advantages over Bluetooth in the form of higher data rates and longer range. *Id.* at 44–45 (citing Ex. 1003 ¶ 63).

Patent Owner argues that one of ordinary skill in the art would not have been motivated to make this combination, “because the 802.11b Supplement describes a data sharing standard for a local area network that is not compatible with the functionality of the Bluetooth piconet taught by Marchand.” PO Resp. 47. According to Patent Owner, Bluetooth networks require a master-slave relationship between the devices on the network of the Bluetooth piconet, as in Marchand. *Id.* at 47–48. Conversely, argues Patent Owner, 802.11b is “based on CSMA and a flat and distributed architecture where each device is treated as equal without any precedence or hierarchy as in the master-slave structure of Bluetooth.” *Id.* at 48. Thus, “this master-slave relationship would be lost if the 802.11b standard replaced Bluetooth in Marchand.” *Id.*

Petitioner replies that this argument is “contradicted by the 802.11 standard itself and the knowledge of a [a person of ordinary skill in the art] that the 802.11 standard supports master-slave configurations.” Reply 18 (citing Ex. 1018, 7:37–42; Ex. 1021, 4:46–49). Petitioner further replies that 802.11b would be compatible with Marchand, because the proposed combination “only affects the underlying communication technology, not the higher-layer JAVA or JINI software,” (citing Pet. 44–45; Ex. 1003 ¶¶ 60–63) and “Bluetooth and 802.11 are implemented at the *same levels* of the protocol

stack, as evidenced by the prior art and acknowledged by [Dr. Mandayam]” (citing Ex. 1016, 68:23–25, 70:10–14; Ex. 1005, Fig. 2; Ex. 1008, iii). *Id.* at 19.

On the full record, we are persuaded by Petitioner’s analysis of the references and the evidence presented. We credit Dr. Kiaei’s testimony that one of ordinary skill in the art would have known to substitute 802.11b for Bluetooth, and would have been motivated to do so, in order to provide higher-rate and longer-range local area wireless communication to replace the lower-rate and shorter-range Bluetooth wireless standard. Ex. 1003 ¶¶ 62–63. Patent Owner’s Bluetooth-piconet-based arguments entail an alleged requirement of a master-slave relationship in Bluetooth, which Petitioner has demonstrated is not the case. As such, Patent Owner’s arguments do not sufficiently counter Petitioner’s arguments and evidence illustrating that the 802.11b standard would have been a viable and interchangeable alternative to Marchand’s Bluetooth.

3. Ground Based on Marchand, Router Plugins, Hoffmann, and RFC 2663

Petitioner challenges claim 9 as obvious under 35 U.S.C. § 103 over Marchand, Router Plugins, Hoffman, and RFC 2663. Pet. 46–48. Patent Owner disputes Petitioner’s contentions. PO Resp. 49–52. Claim 9 depends from claim 1, and requires “wherein the router software component includes a network address port translation (‘NAPT’) software component.” Ex. 1001, 17:29–31.

a. RFC 2663

RFC 2663 discloses a basic Network Address Translator (“NAT”) and a Network Address Port Translation (“NAPT”), which is an extension of NAT. Ex. 1009 ¶¶ 4.0–4.4. NAPT “allows the transport identifiers of a

number of private hosts to be multiplexed into the transport identifiers of a single external address.” *Id.* ¶ 4.1.2.

b. Analysis

Petitioner argues one of ordinary skill in the art would have modified the Marchand/Router Plugins/Hoffman combination using RFC 2663 standard “to provide the ability to multiplex multiple private hosts into the transport identifiers of a single external IP address.” Pet. 46–47 (citing Ex. 1003 ¶ 65). Petitioner further argues one of ordinary skill in the art would have been motivated to make such a modification, which amounts to “the use of a known technique to improve similar devices in the same way.” *Id.* at 47. Specifically, Petitioner argues one of ordinary skill in the art would have understood that NAPT functionality would have improved the overall capacity of the Marchand/Router Plugins/Hoffman combination with its ability to multiplex multiple private hosts into the transport identifiers of a single external IP address. *Id.* (citing Ex. 1003 ¶ 65).

Patent Owner argues that there are many variations of address translation, and that RFC 2663 identifies four NAT flavors: Traditional NAT (or) Outbound NAT; Bi-direction NAT (or) Two-Way NAT; Twice NAT; and Multihomed NAT. PO Resp. 49. NAPT, according to Patent Owner, is one of the two variations of Traditional NAT. *Id.* at 51 (citing Ex. 1009, 10–14). Patent Owner refers to its earlier argument for claim 8 that Marchand teaches away from using NAT based address translation to avoid problems that can arise. *Id.* at 51. Furthermore, Patent Owner argues, implementation of NAPT functionality in Marchand’s mobile gateway would be unnecessary, and Marchand instead teaches that only one device makes a call at a time. *Id.* at 51–52.

Petitioner replies that “Marchand’s use of NAT makes Marchand suitable for NAPT and a [person of ordinary skill in the art] would have understood NAPT to be useful in handling the various types of data traffic in Marchand.” Reply 21 (citing Ex. 1003 ¶¶ 64–65). Petitioner maintains that, further to Patent Owner’s acknowledgment that NAPT is one of the two variations of Traditional NAT, one of ordinary skill in the art would contemplate use of a variation of NAT, such as NAPT, when reviewing Marchand. Pet. 47; Ex. 1003 ¶¶ 64–65; Reply 21–22. Regarding Patent Owner’s argument that NAPT is unnecessary because Marchand does not discuss allowing two devices to place a call at the same time, Petitioner argues that (a) Marchand describes that the API is only downloaded to a device involved in a call, without limitation on the number of devices that can be involved in a call at any given time (citing Ex. 1005, 6:29–31); and (b) Patent Owner fails to consider the entire teachings of Marchand, including the various types of data communications routed by mobile gateway 33, such as those associated with “security surveillance systems and temperature-control thermostats (citing Ex. 1003 ¶ 28; Ex. 1005, 13:16–19).” *Id.* at 22–23.

Accepting that NAPT is one of the two variations of Traditional NAT, and given that we have found that the subject matter of claim 8, which requires NAT, would have been obvious in view of Petitioner’s proposed combination, we agree that use of a variation of NAT, i.e. NAPT, would amount to “the use of a known technique to improve similar devices in the same way.” *See KSR*, 550 U.S. at 417. We credit Dr. Kiaei’s testimony that such functionality would have the advantage of improving the overall capacity of Marchand’s mobile gateway 33 and allow multiple devices to

simultaneously communicate with network 35. Ex. 1003 ¶¶ 64–65. Patent Owner’s reliance on a particular teaching of Marchand, without accounting for the variety of disclosures in Marchand related to situations in which various types of data communications may be routed by Marchand’s mobile gateway 33, does not change this determination. We are persuaded by Petitioner’s presentation of the evidence and its arguments that the subject matter of claim 9 would have been obvious over the proposed combination of references.

4. Ground Based on Marchand, Router Plugins, Hoffman, and Schweitzer

Petitioner challenges claims 15, 16, and 24 as obvious under 35 U.S.C. § 103 over Marchand, Router Plugins, Hoffman, and Schweitzer. Pet. 52–59. Patent Owner disputes Petitioner’s contentions. PO Resp. 52–56. Claim 14 (from which 15 and 16 depend) and claim 24 each recite a “network service software component.”

a. Schweitzer

Schweitzer discloses a method and apparatus for session reconstruction using a first analyzer coupled to a second analyzer. Ex. 1011, Abstract. Schweitzer’s analyzer 104 analyzes packets to be assigned to flows and then to sessions, and can gather statistics about flows and sessions and about the corresponding application usage. *Id.* at 5:9–13, 7:2–48. The statistics gathered by Schweitzer can be analyzed to meter and monitor usage (*id.* at 4:33–38) and to generate service detail records for usage (*id.* at 2:10–15). Schweitzer may also implement policy 114 to allocate certain bandwidth to certain users or groups, or to determine treatment of different application events. *Id.* at 5:15–21. One or more filters may be implemented to control different flows on a network and to enforce policies. *Id.* at 9:17–22.

b. Analysis

Petitioner argues one of ordinary skill in the art would have “implemented the application-level network monitoring and policy enforcement of Schweitzer in the mobile gateway 33 of the Marchand/Router/Hoffman combination.” Pet. 55. This implementation, according to Petitioner, would result in mobile gateway 33 implementing a modified statistics gathering plugin to gather statistics regarding network usage of individual applications. *Id.* Also, according to Petitioner, a person of ordinary skill in the art would have modified Schweitzer’s filter to implement application-level filtering, such as limiting or allowing traffic for a particular application. *Id.* at 56 (citing Ex. 1003 ¶ 76). Petitioner further argues one of ordinary skill in the art would have been motivated to make such a modification, which amounts to “the use of a known technique to improve similar devices in the same way.” *Id.* Specifically, Petitioner argues the “statistics gathering plugin” and the “packet scheduling plugin” in the Marchand/Router Plugins/Hoffman combination would have been “improved by the ability to collect application-level statistics using Schweitzer’s application recognizer 110 and application tests 206, and the ability to filter traffic based on particular applications, as implemented by Schweitzer’s filter 102.” *Id.* at 56–57 (citing Ex. 1003 ¶ 77).

Regarding claim 15, Petitioner maps the modified “statistics gathering plugin” of the combination to the statistics software component that collects usage information of a first wireless device. Pet. 57. Regarding claim 16, Petitioner reasons that the modified “statistics gathering plugin” would have been implemented in gateway 33 and would have gathered statistics regarding network usage of individual applications running on devices in the

LAN. *Id.* at 57. Regarding claim 24, Petitioner alleges that the modified “packet scheduling plugin” of the combination would have been able to enforce different application level policies and rules based on statistics gathered, using the RealAudio(TM) example given in Schweitzer. *Id.* at 58–59 (citing Ex. 1011, 8:11–17).

Patent Owner argues that one of ordinary skill in the art would not have been motivated to make this combination such that the “statistics gathering plugin” and “packet scheduling plugin” of Schweitzer would have been located on Marchand’s gateway mobile phone, because “the only IP packets that the mobile gateway device could filter and/or analyze are the IP packets directed at it while providing the call control service.” PO Resp. 54–55. Patent Owner refers to its theory that the requesting device and the device providing the service in Marchand establish their own, independent piconet, as illustrated in Figure 4 of Dr. Mandayam’s declaration, in which mobile gateway 33 is not necessarily involved. *Id.*; Ex. 2201 ¶¶ 33–34, 100. Patent Owner additionally states that the size and ease of mobility of Marchand’s mobile phone would make the mobile gateway ineffective, and that it has less memory, processing power, and battery life. PO Resp. 55–56.

Petitioner replies that the gateway provides access to an external cellular network and therefore is a natural location to gather statistics of the LAN. Reply 23–25 (citing Ex. 1003 ¶¶ 75–77). Petitioner challenges Patent Owner’s theory that a separate piconet is disclosed in Marchand as “hypothetical and unsupported.” *Id.* at 24. Petitioner also challenges Patent Owner’s contention that Marchand’s gateway would have insufficient resources as uncorroborated opinion. *Id.* at 25.

Figure 4 of Dr. Mandayam's declaration is an annotated version of Marchand's Figure 3 that was created by Dr. Mandayam to illustrate a hypothetical situation. Ex. 2201 ¶¶ 33–34. We do not regard the “exemplary Bluetooth network” shown in this figure as the only possible configuration of Marchand's network. PO Resp. 16. We also agree with Petitioner that Marchand itself does not disclose a separate piconet between the laptop and printer that excludes mobile gateway 33. Reply 24. The more persuasive argument is Petitioner's, wherein “local devices on Marchand's LAN 30 can only access the external wireless IP network 35 by passing through the gateway.” *Id.* (citing Ex. 1016, 141:12–15; Ex. 1003 ¶¶ 75–77). In view of this, we are persuaded by Petitioner's rationale that a person of ordinary skill in the art would have implemented a statistics gathering plugin and a packet scheduling plugin in mobile gateway 33. *See* Pet. 55–56 (citing, *inter alia*, Ex. 1003 ¶¶ 75–76). Regarding the resources on mobile gateway 33, we are not aware of evidence in the record demonstrating that mobile gateway 33 would be deficient in the resources required to implement Schweitzer's statistics-gathering and packet-scheduling plugins. In view of the many other types of software running on mobile gateway 33 and functions performed by mobile gateway 33 (Pet. 56–57; Reply 25 (referring to JINI, SIP, and various information-aggregating functions of Marchand)), one of ordinary skill in the art would not have been deterred from implementing plugins such as those found in Schweitzer in mobile gateway 33.

We are persuaded by Petitioner's presentation of the evidence and its arguments that the subject matter of claims 15, 16, and 24 would have been obvious over the proposed combination of references.

E. Testimony of Dr. Kiaei

Patent Owner argues that “Dr. Kiaei’s opinions are unreliable because they misunderstand and mischaracterize the inner workings of Marchand’s network and devices.” PO Resp. 14. Dr. Kiaei’s “opinions regarding Bluetooth, the proposed modifications of Marchand, and the purported motivations for modifying Marchand should be entitled to little weight, if any,” Patent Owner argues, because of “Dr. Kiaei’s lack of understanding Bluetooth and failure to consider the implications of Marchand’s reliance on Bluetooth with respect to the proposed combinations.” *Id.* at 17.

Specifically, Patent Owner argues that “Dr. Kiaei testified that he did not believe that one device could be connected in more than one piconet” and “admitted that he did not study these types of connections.” *Id.*

Petitioner replies that the “portion of Marchand relied upon in the Petition does not rely on a device being connected in more than one piconet.” Reply 26. Thus, Patent Owner’s “sub-piconet” theory is supported by hypothetical drawings and testimony of Dr. Mandayam, but not by Marchand, according to Petitioner. *Id.* It is “not surprising” that Dr. Kiaei responded that whether the device could be connected in more than one piconet was outside of the scope of what he was looking at, and a “hypothetical question” that he could not answer without more information, according to Petitioner. *Id.* In sum, Petitioner argues that Patent Owner’s “attack on Dr. Kiaei’s credibility is misguided and [is] not germane to any substantive issues involved in this proceeding.” *Id.* at 27.

We have the discretion to determine the appropriate weight to be accorded to the evidence presented, including opinion testimony, based on the disclosure of the underlying facts or data upon which the opinion is

based. *See, e.g., Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010) (holding the Board has discretion to credit one witness’s testimony over another “unless no reasonable trier of fact could have done so”). We are not persuaded by Patent Owner’s arguments that Dr. Kiaei’s testimony as a whole should be given “little weight, if any.” We have considered Patent Owner’s sub-piconet theory, and we determine that it would not have limited an ordinarily skilled artisan’s understanding of Marchand. Thus, we accord an appropriate weight to Dr. Kiaei’s testimony as indicated in this Decision and for the reasons articulated in this Decision.

F. Motion to Exclude

The party moving to exclude evidence bears the burden of proof to establish that it is entitled to the relief requested, e.g., that the material sought to be excluded is inadmissible under the Federal Rules of Evidence. *See* 37 C.F.R. §§ 42.20(c), 42.62(a).

Patent Owner filed a Motion to Exclude (Paper 21), to which Petitioner responded (Paper 24) and to which Patent Owner filed a Reply (Paper 25). Patent Owner’s motion seeks to exclude (a) Exhibits 1017 and 1020 as inadmissible pursuant to 37 C.F.R. § 42.123(b); (b) Exhibits 1017, 1019, and 1020 as not authenticated; (c) Exhibits 1017, 1019, and 1020 as hearsay; and (d) Exhibits 1013 and 1017–1021 as irrelevant. Paper 21, 1–13.

Petitioner responds that (a) Exhibits 1017 and 1020 are proper reply evidence; (b) Exhibits 1017, 1019, and 1020 meet FRE 901; (c) Exhibits 1017, 1019, and 1020 do not constitute inadmissible hearsay, as date information is admissible; and (d) Exhibits 1013 and 1017–1021 are relevant. Paper 24, 1–15.

Because we do not rely upon Exhibits 1013 or 1019 in this Decision, Patent Owner's Motion to Exclude need not be decided as to these exhibits. Accordingly, Patent Owner's Motion to Exclude is *dismissed* as moot as to Exhibits 1013 and 1019.

We disagree that Exhibits 1017 and 1020 are inadmissible pursuant to 37 C.F.R. § 42.123(b), or that they are improper reply evidence. Petitioner may submit evidence with its Reply in support of Petitioner's properly responsive arguments. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1078 (Fed. Cir. 2015). In particular, Petitioner argues these articles elaborate on the NetBSD software plugins discussed in Router Plugins' Abstract, to counter Patent Owner's argument that Marchand and Router Plugins are directed to different devices. Paper 24, 4–5. We find that Exhibits 1017 and 1020 were properly submitted by Petitioner as evidence in rebuttal to Patent Owner's argument.

We further disagree that Exhibits 1017 and 1020 are not authenticated. Patent Owner fails to provide evidence that these documents are not, on their face, what they appear to be. Specifically, Petitioner refers to the “‘AUUG’ marks, an ISBN number, a copyright notice, and date and contact information” in Exhibit 1017, as well as the “IEEE marks, a copyright notice, and date information” in Exhibit 1020. *Id.* at 6. We are persuaded that Exhibits 1017 and 1020 are authenticated at least under Federal Rule of Evidence 901(b)(4). On this record, we accept Exhibits 1017 and 1020 for what they purport and are alleged to be. Moreover, we see no reason that Exhibit 1020 would not fall under the ancient document exception. FRE 901(b)(8).

Similarly, we do not find that the date information on Exhibits 1017 and 1020 constitutes inadmissible hearsay. We find credible the testimony of Petitioner's declarant, Jessica Coral Sheldon-Hess, attesting to the date information on those exhibits, at least as to information in a learned treatise, periodical, or pamphlet under FRE 803(18). Ex. 1023. As to Exhibit 1020, we credit Ms. Sheldon-Hess's testimony that the date information therein qualifies as a statement in an ancient document under FRE 803(16). *Id.*

Finally, Patent Owner's arguments regarding relevance are directed more to the weight to be given to the evidence before us, rather than its admissibility. We are in a position to assign the appropriate weight to be accorded to a particular piece of evidence.

Accordingly, Patent Owner's Motion to Exclude is *denied* as to Exhibits 1017, 1018, 1020, and 1021.

G. Conclusion

Based on the information presented, we conclude that Petitioner has demonstrated by a preponderance of the evidence that

(a) claims 1, 4, 5, 8, 12, 14, and 23 are unpatentable over Marchand, Router Plugins, and Hoffman under 35 U.S.C. § 103;

(b) claim 7 is unpatentable over Marchand, Router Plugins, and 802.11b under 35 U.S.C. § 103;

(c) claim 9 is unpatentable over Marchand, Router Plugins, and RFC2663 under 35 U.S.C. § 103; and

(d) claims 15, 16, and 24 are unpatentable over Marchand, Router Plugins, and Schweitzer under 35 U.S.C. § 103.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 4, 5, 7–9, 12, 14–16, and 23–24 are held unpatentable;

FURTHER ORDERED that Patent Owner’s Motion to Exclude is *denied* as to Exhibits 1017, 1018, 1020, and 1021, and *dismissed* as to Exhibits 1013 and 1019; and

FURTHER ORDERED because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2015-01443
Patent 7,295,532 B2

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