

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RPX CORPORATION,
Petitioner,

v.

VERTICAL CONNECTION TECHNOLOGIES,
Patent Owner.

IPR2018-01387
U.S. Patent 7,245,917 B2

Before WILLIAM M. FINK, *Vice Chief Administrative Patent Judge*,
MICHAEL W. KIM and NORMAN H. BEAMER, *Administrative Patent Judges*.

BEAMER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Denying Patent Owner's Motion to Amend
35 U.S.C. § 318(a)

I. INTRODUCTION

On July 13, 2018, T-Mobile USA, Inc. and RPX Corporation filed a Petition (Paper 3, “Pet.”) pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claims 1–11 of U.S. Patent No. 7,245,917 B2 (Ex. 1001, “the ’917 patent”). On October 26, 2018, Vertical Connection Technologies LLC (“VCT”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”). Pursuant to a November 13, 2018 Order (Paper 8), T-Mobile USA, Inc. and RPX Corporation filed a Reply to the Preliminary Response (Paper 10, “Reply”), and on November 30, 2018, VCT filed a Sur-Reply (Paper 11, “Sur-Reply”).

On January 23, 2019, applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we instituted an *inter partes* review of claims 1–11. Paper 14 (“Institution Dec.”). In the Institution Decision, we determined Petitioner demonstrated a reasonable likelihood that it would prevail as to claims 1–11, and we instituted trial on all claims and all grounds in the Petition. Institution Dec. 24.

Following institution, on April 17, 2019, pursuant to a Joint Motion, this proceeding was terminated as to T-Mobile USA, Inc. Paper 18. VCT did not file a Patent Owner Response to the Petition, but did file a May 9, 2019 Motion to Amend (Paper 25, “Mot. Amend”). On August 8, 2019, RPX Corporation (hereafter, “Petitioner”) filed an Opposition to the Motion to Amend (Paper 28, “Oppos. Amend”). No other substantive papers were filed by either party.

An oral hearing took place on October 23, 2019. The Hearing Transcript (“Tr.”) is included in the record as Paper 31. VCT elected to not participate in the hearing. Tr. 1. After considering the parties’ arguments and supporting evidence, we determine that Petitioner has proven by a preponderance of the evidence that claims 1–11 of the ’917 patent are unpatentable. 35 U.S.C. § 316(e). We also deny VCT’s Motion to Amend.

II. BACKGROUND AND SUMMARY

A. *The ’917 Patent*

The ’917 patent, titled “System And Method For IP Handoff,” issued July 17, 2007, from an application filed April 1, 2004, and relates to a provisional application filed September 8, 2003. Ex. 1001, (22), (45), (54), (60).

The ’917 patent describes “seamless vertical handoff,” which provides “mobile roaming capabilities” by allowing network applications on a mobile node (*e.g.*, a laptop or smart phone) to continue without disruption as the node moves between wireless networks with different underlying technologies — *e.g.*, moving from a wireless local area network (WLAN) to a wireless wide area network (WWAN). *Id.* at Abstract. A “vertical” handoff in this context refers to a handoff between wireless networks of different technologies, in contrast to a “horizontal” handoff from, for example, one WLAN to another. *Id.* at col. 1, ll. 31–37.

The underlying technology of the ’917 patent is based on the “Mobile IP” standard, which provides for communication between a mobile node (“MN”) and another node, called a “correspondent node” (“CN”) via “home agents” (“HA”) and “foreign agents” (“FA”). Ex. 1004, 5–9; Ex. 1025 ¶ 23; Ex. 1016.

The vertical handoff process described and claimed in the '917 patent is illustrated in Figures 3A and 3B, reproduced below.

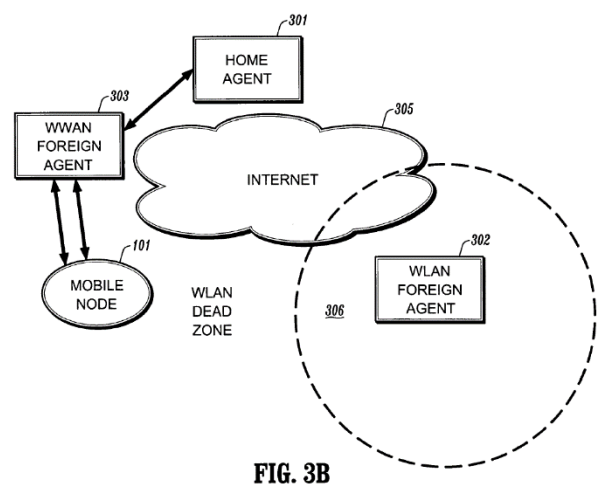
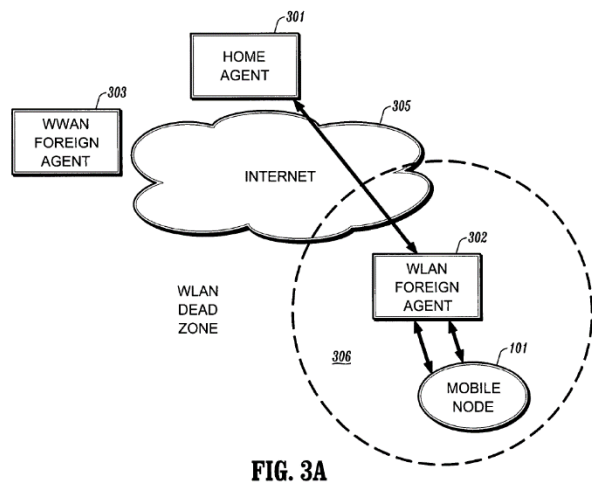


Figure 3A illustrates mobile node 101 connected to home agent 301 via WLAN foreign agent 302 and Internet 305. Ex. 1001, col. 5, ll. 62–67. This figure shows that the mobile node is not in its home location, but is in another WLAN service area 306, in which case it makes connections with correspondent nodes (not shown), via communications passing between the correspondent node and the home agent, which in turn pass between the home agent and the WLAN foreign agent using a “tunneling” process, and finally pass between the foreign agent and the mobile node. *Id.* at col. 6, ll. 8–11.¹

Figure 3B shows that the mobile node has moved into a “WLAN dead zone,” but is in a WWAN service area, thus causing a vertical handoff to

¹ Tunneling was well-known in networking at the time of the '917 application, and involved “encapsulating” data packets in order to transmit their contents undisturbed, so as to hide a mobile node’s home address from intervening routers between its home network and its current location. Rysavy Decl. ¶ 25.

occur, such that the connection to the home agent is via WWAN foreign agent 303, again via a tunneling process. *Id.* at col. 7, ll. 11–25. The handoff process is triggered by the decline in signal strength of the current WLAN network below a defined threshold value. *Id.* at Fig. 4A, col. 9, ll. 52–66. During handoff, transmitted information is “cached” in order to avoid loss of data. *Id.*

B. Illustrative Claims

Challenged independent claims 1 and 9 are reproduced below.

1. A vertical handoff system comprising:
 - a first foreign agent providing connectivity to a network, the first foreign agent broadcasting a wireless local area network signal;
 - a second foreign agent providing connectivity to the network via a wireless wide area network signal;
 - a mobile node comprising executable code for performing a vertical handoff between the first foreign agent and the second foreign agent; and
 - a home agent routing information to the mobile node through one of the first foreign agent and the second foreign agent according to an established connection of the mobile node.
9. A vertical handoff method comprising:
 - establishing a network connection to a network host via a wireless local area network;
 - determining a strength of the wireless local area network connection to be at or below a threshold strength; and
 - moving, seamlessly, the network connection to a wireless wide area network.

Ex. 1001, col. 14, ll. 2–14, 48–53.

C. Prior Art Relied Upon

Petitioner relies upon the following prior art references (Pet. vi–vii):

- U.S. Patent No. 6,993,335 B2 (“Natarajan”). Ex. 1005.
- C. Perkins, et al., Optimized Smooth Handoffs in Mobile IP, IEEE Int’l Symposium on Computers and Comm’ns (July 1999) (“Perkins”). Ex. 1006.
- G. Montenegro, Reverse Tunneling for Mobility IP, revised, FC 3024, The Internet Society (Jan. 2001) (“RFC-3024”). Ex. 1007.
- W. Richard Stevens, TCP/IP Illustrated, Volume 1, Addison-Wesley, ISBN 0-201-63346-9 (1994) (excerpts) (“Stevens”). Ex. 1008.
- E. Brewer, et al., A Network Architecture for Heterogeneous Mobile Computing, IEEE Personal Comm’ns (Oct. 1998) (“Brewer”). Ex. 1009.
- A. Sanmateu, et al., Seamless mobility across IP networks using Mobile IP, Computer Networks: Int’l J. Computer Telecomm’ns Networking (Sept. 2002) (“Sanmateu”). Ex. 1010.
- K. Pahlavan, et al., Handoff in Hybrid Mobile Data Networks, IEEE Personal Comm’ns (Apr. 2000) (“Pahlavan”). Ex. 1011.

Petitioner also relies on Declarations of Peter Rysavy. Ex. 1025 (“Rysavy Decl.”); Ex. 1052 (“Rysavy 2nd Decl.”).

D. Asserted Grounds of Unpatentability

Petitioner challenges claims 1–11 on the following grounds of unpatentability (Pet. 4):

Claim(s)	References	Basis
1–4, 6–10	Natarajan	§ 103(a)
4	Natarajan, Perkins	§ 103(a)
5	Natarajan, RFC-3024	§ 103(a)
9–11	Natarajan, Stevens	§ 103(a)
1–4, 6, 7, 9–11	Brewer	§ 103(a)

2, 6, 9–11	Brewer, Sanmateu	§ 103(a)
5	Brewer, RFC-3024	§ 103(a)
8	Brewer, Pahlavan	§ 103(a)

E. Real Parties in Interest

RPX is the remaining real party in interest for Petitioner. Pet. ix; Paper 18.

VCT identifies “Vertical Connection Technologies LLC, exclusive licensee of [the ‘917 patent], and The Research Foundation of the State University of New York (“Research Foundation”), owner of the ‘917 patent,” as the real party in interest. Paper 21, 2.

F. Related Matters

The parties are contemporaneously involved in IPR2018-01388, which concerns claims 12–25 of the ‘917 patent. Pet. ix. Additional petitions for *inter partes* review of the ‘917 patent were *AT&T Corporation et al. v. Vertical Connection Technologies LLC*, IPR2018-01750 and IPR2018-01753, which proceedings were terminated on April 1, 2019. *E.g.*, IPR2018-01750, Paper 15.

The ‘917 patent was asserted in *Vertical Connection Technologies LLC v. T-Mobile US, Inc. et al.*, 2:17-cv-04992-JMA-AKT, (E.D.N.Y.) and *Vertical Connection Technologies LLC v. AT&T Corporation et al.*, 2:17-cv-04990-JMA-GRB, (E.D.N.Y.), which actions have been dismissed. Paper 21, 2.

III. ANALYSIS — PETITIONER’S ORIGINAL GROUNDS

A. Legal Standards — Obviousness

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter 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 skill in the art; and (4) where in evidence, so-called secondary considerations, including commercial success, long-felt but unsolved needs, failure of others, and unexpected results (“the *Graham* factors”).² *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

If the claimed subject matter cannot be fairly characterized as involving the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement, a holding of obviousness can be based on a showing that “there was an apparent reason to combine the known elements in the fashion claimed.” *KSR*, 550 U.S. at 418. Such a showing requires “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

In general, obviousness entails an inquiry that is “expansive and flexible” and takes into account “the inferences and creative steps that a person of ordinary skill in the art would employ” when presented with the teachings of the prior art. *KSR*, 550 U.S. at 415–18. Under this flexible approach, 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 claimed. *Takeda Chem. Ind., Ltd. v. Alphapharm Pty., Ltd.*, 492

² VCT does not rely on any secondary considerations.

F.3d 1350, 1356–57 (Fed. Cir. 2007). Such reason may be found “explicitly or implicitly in market forces; design incentives; the interrelated teachings of multiple patents; any need or problem known in the field of endeavor at the time of invention and addressed by the patent; and the background knowledge, creativity, and common sense of the person of ordinary skill.” *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018) (internal quotations and citations omitted); *see also KSR*, 550 U.S. at 419–20. Moreover, ““if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”” *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1003 (Fed. Cir. 2016) (quoting *KSR*, 550 U.S. at 417).

“[A] combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 550 U.S. at 416. “[I]n many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle. . . . A person of ordinary skill is also a person of ordinary creativity, not an automaton.” *Id.* at 420–421.

“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). “Combining the *teachings* of references does not involve an ability to combine their specific structures.” *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973).

B. Level of Ordinary Skill in the Art

Petitioner's expert opines:

[A]s of April 2004 (the filing date of the application that issued as the '917 patent), it is my opinion that a person of ordinary skill in the art ("POSITA") would have had a bachelor's degree in electrical engineering or computer science, plus two years experience designing and implementing heterogeneous network systems. From this experience, the POSITA would have had working familiarity with Mobile IP; with TCP/IP and other similar protocols, e.g., UDP; GPRS, GSM, and similar WWAN networks often used in Mobile IP implementations; and IEEE 802.11 and similar wireless local area networks (WLANs).

Rysavy Decl. ¶ 32. VCT does not provide an alternative or dispute this description, and after review of the record we agree with and adopt it as our own.

C. Claim Construction

The Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2018); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard).³ The broadest reasonable construction is an interpretation that corresponds with how the inventor describes his invention in the specification, *i.e.*, an interpretation that is "consistent with

³ We acknowledge that for petitions filed on or after November 13, 2018, the *Phillips* standard will be applied. Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (codified at 37 C.F.R. § 42.100(b) (2019)). The recent amendment to the claim construction standard does not apply in this proceeding because the Petition was filed before November 13, 2018.

the specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) (citation and internal quotation marks omitted); *see also In re Suitco Surface Inc.*, 603 F.3d 1255, 1259–60 (Fed. Cir. 2010). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Otherwise, terms are given their ordinary and customary meaning, as would have been understood by one of ordinary skill in the art at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007.) We need only construe terms “that are in controversy, and only to the extent necessary to resolve the controversy.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

Petitioner submits the following proposed constructions, based on the above-discussed Mobile IP standard:

“home agent” should be construed as comprising an MIP home agent, which RFC-2002 defines as: “A router on a mobile node’s home network which tunnels datagrams for delivery to the mobile node when it is away from home, and maintains current location information for the mobile node.”

“foreign agent” should be construed as comprising an MIP foreign agent, which RFC-2002 defines as: “A router on a mobile node’s visited network which provides routing services to the mobile node while registered. The foreign agent detunnels and delivers datagrams to the mobile node that were tunneled by the mobile node’s home agent. For datagrams sent by a mobile node, the foreign agent may serve as a default router for registered mobile nodes.”

Pet. 10–11; Ex. 1052, 10 (citations omitted). VCT does not propose any claim constructions in connection with Petitioner’s original unpatentability grounds, and in the Motion to Amend submits “that the language in the

additional limitations in the proposed substitute claims is well-understood and does not require explicit construction.” Mot. Amend 5. Based on our review of Petitioner’s un rebutted expert declaration explaining the basis for these definitions, we agree with and adopt these claim constructions.

Rysavy Decl. ¶¶ 37–39; Rysavy 2nd Decl. ¶ 10.

D. Ground 1: Obviousness of Claims 1–4 and 6–10 Over Natarajan

For the first ground challenging the ’917 patent, Petitioner argues claims 1–4 and 6–10 are obvious over Natarajan. Pet. 11–30.⁴ Based on our review of the record as a whole, we determine that Petitioner has proven by a preponderance of the evidence supporting the first four asserted grounds that claims 1–11 of the ’917 patent are unpatentable. With that understanding, we summarize our analysis below, based on the arguments made in the Petition, which are supported by the submitted prior art and Petitioner’s expert’s testimony.

1. The Natarajan Patent

Natarajan, titled “Apparatus And Method For Mobile/IP Handoff Between A Plurality Of Access Technologies,” issued January 31, 2006 from an application dated November 15, 2002. Ex. 1005. Natarajan discloses a method of Mobile IP handoff between different access technologies using two signal strength thresholds, where a mobile node performs a handoff from a preferred network to another available network when the signal strength falls below the lower threshold, and returns to the

⁴ For economy of presentation, for this and the remaining grounds relied on by Petitioner, we note that VCT does not provide any counterarguments — it has not submitted a Patent Owner Response or appeared at the oral hearing.

preferred network when signal strength exceeds the higher threshold. *Id.* at Abstract.

Figure 1 of Natarajan is reproduced below.

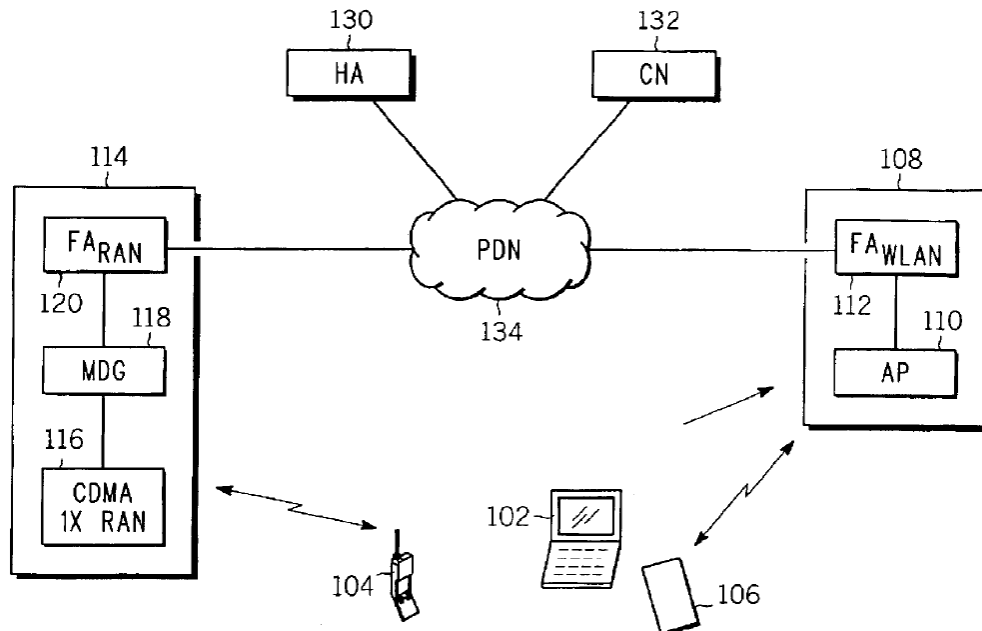
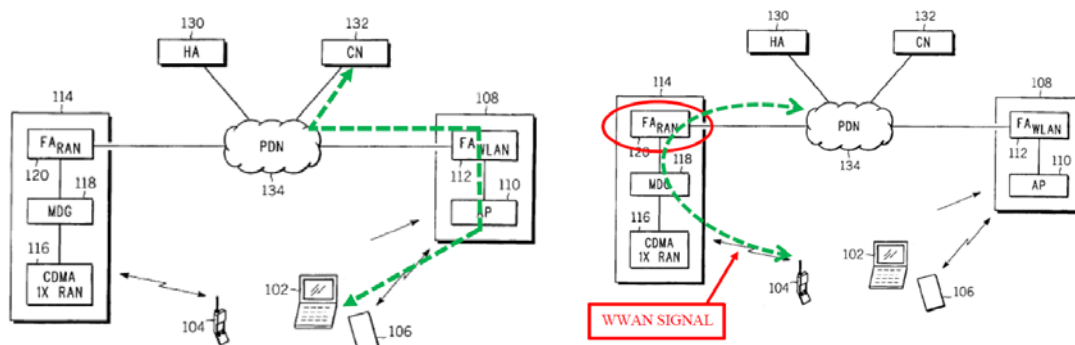


Figure 1 depicts mobile node 102 connected to correspondent node CN 132 via home agent HA 130 associated with mobile node 102, where the home agent tunnels either through preferred foreign agent 112 of a WLAN, or through foreign agent 120 of a radio access network (RAN). *Id.* at col. 2, l. 19–col. 3, l. 54. Petitioner’s expert submits annotated versions of Figure 1, which are reproduced below.



These annotated figures show tunneling through the WLAN connection on the left and through the RAN connection on the right. Rysavy Decl. ¶¶ 62, 80.

2. *Independent Claim 1*

For the preamble of claim 1 (“a vertical handoff system”), the record establishes that Natarajan performs vertical handoffs. Specifically, we find that the above described handoffs between WLAN and RAN in Natarajan are vertical handoffs across different wireless technologies. Pet. 12–13.

The first element of claim 1 requires, “a first foreign agent providing connectivity to a network, the first foreign agent broadcasting a wireless local area network signal.” Ex. 1001, col. 14, ll. 3–5. The record establishes that foreign agent 112 in the WLAN described in Natarajan discloses this requirement. Pet. 13–15 (citing Ex. 1005, Fig. 1, col. 2, ll. 31–33). The foreign agent broadcasts “advertisements” to make the mobile nodes aware of the WLAN of the foreign agent, and also broadcasts data over that WLAN. *Id.* at col. 3, ll. 21–22; Rysavy Decl. ¶¶ 59–60.

The second element of claim 1 requires, “a second foreign agent providing connectivity to the network via a wireless wide area network signal.” Ex. 1001, col. 14, ll. 6–7. The record establishes that this requirement is satisfied by foreign agent 120 in the RAN described in Natarajan, given that a radio access network is a type of WWAN. Pet. 15 (citing Ex. 1005, Fig. 1, col. 2, ll. 44–47; Rysavy Decl. ¶¶ 61–62).

The third element of claim 1 requires, “a mobile node comprising executable code for performing a vertical handoff between the first foreign agent and the second foreign agent.” Ex. 1001, col. 14, ll. 8–10. The record establishes that Natarajan describes mobile node 102, which satisfies this

requirement. Pet. 16–17 (citing Ex. 1005, Fig. 1, col. 2, ll. 19–58; Rysavy Decl. ¶ 63). Natarajan describes an “approach to initiate seamless inter-technology handoffs which can be used at the MN.” Ex. 1005, col. 3, ll. 41–43. To the extent Natarajan does not explicitly refer to “executable code,” Petitioner asserts, and based on the unrebutted expert testimony we agree, that it would have been obvious to implement the vertical handoff logic using executable code residing in the disclosed processor of the mobile node. Pet. 17 (citing Rysavy Decl. ¶ 64; Ex. 1005, Fig. 2, col. 3, ll. 62–65).

The fourth element of claim 1 requires, “a home agent routing information to the mobile node through one of the first foreign agent and the second foreign agent according to an established connection of the mobile node.” Ex. 1001, col. 14, ll. 11–14. The record establishes that the described operation of the home agent in Natarajan satisfies this requirement. Pet. 18 (citing Ex. 1005, Fig. 1, col. 2, ll. 40–42, 59–66). Petitioner asserts, and we agree, that this analysis is informed and confirmed by the then well-known Mobile IP standard specifications, which the above embodiment of Natarajan operates under. Pet. 18 (citing Ex. 1005, Abstract, col. 1, ll. 53–55, col. 4, l. 63–col. 5, l. 15; Rysavy Decl. ¶ 65).

Accordingly, we determine that Petitioner has proven by a preponderance of the evidence that claim 1 of the ’917 patent would have been obvious in light of Natarajan.

3. Independent Claim 9

The preamble of claim 9 repeats that of claim 1, which is discussed above. The first element of claim 9 requires, “establishing a network connection to a network host via a wireless local area network.” Ex. 1001, col. 14, ll. 48–49. The record establishes that Natarajan discloses a mobile

node establishing a network connection between it and a “correspondent node (CN)” via an 802.11 WLAN. Pet. 26–28 (citing Ex. 1005, col. 2, ll. 38–42, col. 2, l. 66–col. 3, l. 3; Rysavy Decl. ¶¶ 79–80).

The second element of claim 9 requires, “determining a strength of the wireless local area network connection to be at or below a threshold strength.” Ex. 1001, col. 14, ll. 50–51. The record establishes that Natarajan discloses monitoring WLAN signal strength to determine whether it falls below a threshold, and upon the occurrence of which handoff is initiated. Pet. 28 (citing Ex. 1005, col. 2, ll. 8–18, col. 5, ll. 23–25; Rysavy Decl. ¶ 72).

The third element of claim 9 requires, “moving, seamlessly, the network connection to a wireless wide area network.” Ex. 1001, col. 14, ll. 52–53. The record establishes that Natarajan discloses “seamless inter-technology handoff.” Pet. 28–29 (citing Ex. 1005, col. 1, ll. 53–55, col. 3, ll. 41–45). Based on Petitioner’s un rebutted expert testimony, we determine that this includes handoffs from a WLAN to a WWAN. Rysavy Decl. ¶¶ 81–82.

Accordingly, we determine that Petitioner has proven by a preponderance of the evidence that claim 9 of the ’917 patent would have been obvious in light of Natarajan.

4. Dependent Claims 2, 3, 6–8, and 10⁵

Claim 2 depends from claim 1 and adds the requirement, “the mobile node further comprises a signal strength monitor.” Ex. 1001, col. 14, ll. 15–

⁵ Although Petitioner’s Ground 1 asserts that claim 4 would have been obvious in light of Natarajan alone, we consider claim 4 in connection with Petitioner’s second ground, which presents an alternative argument that claim 4 is obvious over the combination of Natarajan and Perkins.

16. As discussed above, the record establishes that Natarajan discloses that the mobile node “continuously measures the signal strength on each interface” and “monitor[s] the signal strength on the current interface.” Pet. 18–19 (citing Ex. 1005, col. 5, ll. 23–25, col. 6, ll. 28–29). Based on Petitioner’s un rebutted expert testimony, we determine that one of ordinary skill would have known that this would have been done by a signal strength monitor. Pet. 19 (citing Rysavy Decl. ¶ 66).

Claim 3 depends from claim 1 and adds the requirement, “the mobile node comprises a buffer for caching information received through the first foreign agent prior to establishing a connection with the second foreign agent.” Ex. 1001, col. 14, ll. 15–16. Although Natarajan does not explicitly disclose using buffers to cache information, the record establishes that a person of ordinary skill in the art would have known that, in the context of Mobile IP telecommunications, it would have been necessary to do so. Pet. 20–21 (citing Rysavy Decl. ¶ 68). The record support includes a textbook by Tanenbaum as evidence of the state of the art at the pertinent time period. Ex. 1015, 15–19.⁶ In addition, based on Petitioner’s un rebutted expert testimony, we determine that one of ordinary skill would have expected that communications over a Mobile IP connection would have adhered to the TCP (Transport Control Protocol), which protocol requires buffers to cache transmitted packets.⁷ Rysavy Decl. ¶ 67.

⁶ We use the page numbers assigned to this exhibit by Petitioner.

⁷ As stated in the Stevens reference:

TCP provides a reliable flow of data between two hosts. It is concerned with things such as dividing the data passed to it from the application into appropriately sized chunks for the network layer below, acknowledging received packets, setting

Claim 6 depends from claim 1 and adds the requirement:
the executable code for performing the vertical handoff
comprises:

a link status monitor for monitoring a signal strength of
the wireless local area network signal; and

a communication daemon for initiating the vertical
handoff upon determining the signal strength to be undesirable
and for establishing connectivity between a mobile internet
protocol module of the mobile node and the second foreign
agent.

Ex. 1001, col. 14, ll. 27–36. As discussed above for claim 2, the record establishes that Natarajan monitors the signal strength of the current interface, and that it would have been obvious to do this using a link status monitor. Pet. 22–25 (citing Rysavy Decl. ¶¶ 73–74). As discussed, in a cited portion of Natarajan, “[t]he [low water mark] is the signal strength on the current interface at which the [mobile node] triggers a handoff to a different interface.” Ex. 1005, col. 4, ll. 53–57. The record also establishes that a “daemon” was a well-known background process used to initiate actions without user input. Pet. 24 (citing Ex. 1020, 4; Ex. 1026, col. 4, ll. 50–51). Accordingly, based on Petitioner’s unrebutted expert testimony, we determine that it would have been obvious to implement the required handoff using a communication daemon. Pet. 24–25 (citing Rysavy Decl. ¶¶ 75–77).

Claim 7 depends from claim 1 and adds the requirement, “the wireless local area network connects wirelessly to the mobile node via radio

timeouts to make certain the other end acknowledges packets
that are sent, and so on.

Ex. 1008, 13.

frequency electromagnetic airwaves.” Ex. 1001, col. 14, ll. 37–39. The record establishes that one of ordinary skill would have known that a wireless local area network connects wirelessly via radio frequency electromagnetic airwaves. Pet. 25 (citing Rysavy Decl. ¶ 78).

Claim 8 depends from claim 1 and adds the requirement, “the wireless wide area network connects wirelessly to the mobile node via one of Code Division Multiple Access, Global System for Mobile Communications, General Packet Radio Service, Enhanced Data rate for Global Evolution or Wideband Code Division Multiple Access.” Ex. 1001, col. 14, ll. 41–46. The record establishes that Natarajan discloses wireless connections between the WWAN and the mobile node via CDMA, i.e., Code Division Multiple Access. Pet. 26 (citing Ex. 1005, Fig. 1, col. 1, ll. 59–62, col. 2, ll. 19–26).

Claim 10 depends from claim 9 and adds the requirement, “the transition is transparent to a user and a remote end of the network connection.” Ex. 1001, col. 14, ll. 54–56. As discussed above for claim 9, the record establishes that Natarajan discloses “seamless” handoffs (i.e., transitions), which one of ordinary skill would have understood to be transparent to users on both ends of the connection. Pet. 29–30 (citing Ex. 1005, col. 1, ll. 53–55, col. 3, ll. 41–45; Rysavy Decl. ¶¶ 83–84).

Accordingly, we determine that Petitioner has proven by a preponderance of the evidence that claims 2, 3, 6–8, and 10 of the ’917 patent would have been obvious in light of Natarajan.

*E. Grounds 2–4: Obviousness of Claim 4 Over Natarajan and Perkins, of Claim 5 Over Natarajan and RFC-3024, and of Claim 11 Over Natarajan and Stevens*⁸

Claim 4 depends from claim 1 and adds the requirement, “the second foreign agent comprises a buffer for caching information to be transmitted to the mobile node.” Ex. 1001, col. 14, ll. 21–23. As discussed above for claim 3, the record establishes that one of ordinary skill would have been motivated to use buffers to cache information being tunneled between a mobile node and a foreign agent, in order to accommodate variations between the rate of transmitted data and the ability of the agent to handle the data. Pet. 20–22 (citing Rysavy Decl. ¶¶ 67, 70). Petitioner also relies on the combination of Natarajan and Perkins as having taught or suggested this limitation. Pet. 30–31. The record establishes that Perkins discloses buffering at foreign agents in the Mobile IP context and using the buffers to cache information during handoffs. Pet. 30 (citing Ex. 1006, 340). The record establishes asserts that both Natarajan and Perkins are directed to handoffs in Mobile IP, and that one of ordinary skill would have been motivated to implement the requirement of claim 4 in light of these references. Pet. 30–31 (citing Rysavy Decl. ¶¶ 70–71).

Claim 5 depends from claim 1 and adds the requirement, “the home agent comprises a router for routing information transmitted from the mobile node.” Ex. 1001, col. 14, ll. 24–26. The record establishes that routers were well-known components of networks. Ex. 1005, col. 3, ll. 12–14. The

⁸ Although Petitioner’s Ground 4 asserts that claims 9 and 10 would have been obvious in light of Natarajan and Stevens, as discussed above we determine that Petitioner has proven by a preponderance of the evidence that those claims would have been obvious in light of Natarajan alone.

record further establishes that one of ordinary skill would have known that home agents in Mobile IP systems, such as that of Natarajan, would have been implemented in a router. Pet. 32–34 (citing Rysavy Decl. ¶¶ 88–89). The pertinent record also includes RFC-3024, which describes “reverse tunneling.” Pet. 32–34 (citing Ex. 1007).⁹ In particular, based on Petitioner’s un rebutted expert testimony, we determine that one of ordinary skill would have known that use of reverse tunneling would have resulted in the home agent router routing information transmitted from the mobile node. Pet. 34 (citing Rysavy Decl. ¶ 92). This record establishes that one of ordinary skill would have been motivated to so implement reverse tunneling in the system of Natarajan based on the then-known advantages of doing so, including improved network topology, better security, and compatibility with standards. Pet. 32–34 (citing Rysavy Decl. ¶¶ 90–91).

Claim 11 depends from claim 9 and adds the requirement, “buffering packets at a home agent and pacing packets sent to a mobile node, wherein the network connection exists between the home agent and the mobile node.” Ex. 1001, col. 14, ll. 58–60. Petitioner relies on the combination of Natarajan and Stevens as having taught or suggested the requirements of claim 11. Pet. 35–38. Stevens is relied on for its disclosure of TCP. Rysavy Decl. ¶¶ 93–94 (citing Ex. 1009). Based on Petitioner’s un rebutted expert testimony, we determine that one of ordinary skill in the art would have been aware of TCP and its application to the Mobile IP environment, such as that of Natarajan, and would have made use of the teachings of the

⁹ Reverse tunneling is a tunnel that starts at the mobile node’s temporary address and terminates at the home agent, as contrasted with forward tunneling, which starts at the home agent and ends at the mobile node’s temporary address. Ex. 1007, 4.

TCP protocol to provide for flow control and other measures, which include the buffering and pacing requirements of claim 11. Rysavy Decl. ¶¶ 97–98.

Accordingly, we determine that Petitioner has proven by a preponderance of the evidence that claim 4 would have been obvious in light of Natarajan and Perkins, claim 5 would have been obvious in light of Natarajan and RFC-3024, and claim 11 would have been obvious in light of Natarajan and Stevens.

F. Grounds 5–8: Obviousness of Claims 1–4, 6, 7, and 9–11 Over Brewer, of Claims 2, 6, and 9–11 Over Brewer and Sanmateu, of Claim 5 Over Brewer and RFC-3024, and of Claim 8 Over Brewer and Pahlavan

Petitioner asserts Grounds 5 to 8 as an alternative basis for a determination that claims 1–11 are unpatentable. Pet. 38–67 (citing Rysavy Decl. ¶¶ 99–137). As before, VCT has not addressed Petitioner’s contentions. Because we have determined unpatentability of claims 1–11 based on Petitioner’s grounds 1–4, we do not reach these alternative grounds of unpatentability of claims 1–11. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”).

IV. ANALYSIS — MOTION TO AMEND

VCT’s Motion to Amend seeks to substitute new claims 27 and 28 for claims 1 and 9, respectively, and cancel claims 1–11, contingent on a finding of unpatentability of “any of original claims 1–11.” Mot. Amend 1, 9–10.¹⁰

¹⁰ The assignment of claim numbers of the proposed substitute claims in the submitted papers is confusing. Specifically, the Motion to Amend is inconsistent in its assignment of numbers for the proposed substitute claims, in that for challenged claims 1 and 9, VCT proposes replacing them with claims 26 and 27 in the body of the motion, but with claims 28 and 29 in the claim listing appendix. Mot. Amend 1, 9–10. The Opposition to the Motion

The proposed substitute claims are set forth below, with the proposed amendments indicated.

27. A vertical handoff system comprising:
- a first foreign agent providing connectivity to a network, the first foreign agent broadcasting a wireless local area network signal;
 - a second foreign agent providing connectivity to the network via a wireless wide area network signal;
 - a mobile node comprising executable code for performing a vertical handoff between the first foreign agent and the second foreign agent, wherein the mobile node includes a signal strength monitor for monitoring a signal strength when communicating with the first foreign agent, wherein the mobile node initiates the vertical handoff to the second foreign agent when the signal strength falls below a predetermined threshold; and
 - a home agent routing information to the mobile node through one of the first foreign agent and the second foreign agent according to an established connection of the mobile node,
- wherein during the vertical handoff the mobile node establishes a tunnel to the second foreign agent while maintaining an IP address, wherein the tunnel is in addition to an IP-IP channel between the second foreign agent and the home agent.
28. A vertical handoff method comprising:

to Amend adopts VCT's use of claim numbers 26 and 27. However, the Motion to Amend in co-pending IPR2018-01388 seeks to add a different substitute claim 26 in place of challenged claim 12. IPR2018-01388, Paper 24. Therefore, in this Decision we refer to the substitute claims for challenged claims 1 and 9 as claims 27 and 28, respectively.

establishing a network connection to a network host via a wireless local area network;

determining a strength of the wireless local area network connection to be [at or] below a threshold strength by computing an average of the strength using a fixed number of samples and comparing the average to the threshold strength;

when the average is below the threshold strength,
buffering packets receiving on the wireless local area network connection; and

moving, seamlessly, the network connection to a wireless wide area network;

determining a priority for each of the packets in the buffer; and

transmitting the packets in order of the priority from high to low.

Mot. Amend 9–10.

A. *The Applicable Law*

In an *inter partes* review, amended claims are not added to a patent as of right, but rather must be proposed as a part of a motion to amend. 35 U.S.C. § 316(d). The Board must assess the patentability of proposed substitute claims “without placing the burden of persuasion on the patent owner.” *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290, 1328 (Fed. Cir. 2017) (en banc); see “Guidance on Motions to Amend in view of *Aqua Products*” (Nov. 21, 2017) (https://www.uspto.gov/sites/default/files/documents/guidance_on_motions_to_amend_11_2017.pdf) (“Guidance”). Subsequent to the issuance of *Aqua Products* and the Board’s Guidance, the Federal Circuit issued a decision in *Bosch Automotive Service Solutions, LLC v. Matal*, 878 F.3d 1027 (Fed. Cir. 2017) (“*Bosch*”), as well as a follow-up Order amending that decision on rehearing. See *Bosch Auto. Serv.*

Sols., LLC v. Iancu, Order on Petition for Panel Rehearing, No. 2015-1928 (Fed. Cir. Mar. 15, 2018).

In accordance with *Aqua Products*, the Board’s Memorandum, and *Bosch*, Patent Owner does not bear the burden of persuasion to demonstrate the patentability of the substitute claims presented in the motion to amend. Rather, ordinarily, “the petitioner bears the burden of proving that the proposed amended claims are unpatentable by a preponderance of the evidence.” *Bosch*, 878 F.3d at 1040 (as amended on rehearing). *See also Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019) (precedential). The Board itself also may justify any finding of unpatentability by reference to evidence of record in the proceeding. *Id.* (citing *Aqua Products*, 872 F.3d at 1311 (O’Malley, J.)). Thus, the Board determines whether substitute claims are unpatentable by a preponderance of the evidence based on the entirety of the record, including any opposition made by the Petitioner.

Notwithstanding the foregoing, Patent Owner’s proposed substitute claims must meet the statutory requirements of 35 U.S.C. § 316(d) and the procedural requirements of 37 C.F.R. § 42.121. *See Lectrosonics*, Paper 15 at 4–8. Patent Owner must demonstrate: (1) the amendment proposes a reasonable number of substitute claims; (2) the proposed claims are supported in the original disclosure; (3) the amendment responds to a ground of unpatentability involved in the trial; and (4) the amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter. *See* 35 U.S.C. § 316(d); 37 C.F.R. § 42.121.

B. Predicate Requirements

1. Reasonable Number of Substitute Claims

By statute, in a motion to amend, a patent owner may propose a reasonable number of substitute claims for each challenged claim. 35 U.S.C. § 316(d)(1)(B). There is a rebuttable presumption that a reasonable number of substitute claims per challenged claim is one substitute claim. 37 C.F.R. § 42.121(a)(3). VCT proposes a single substitute claim for each cancelled independent claim, and therefore meets this requirement. Mot. Amend 9–10.

2. Support in the Original Disclosure

A motion to amend may not present substitute claims that introduce new subject matter. 35 U.S.C. § 316(d); 37 C.F.R. § 41.121(a)(2)(ii). New matter is any addition to the claims without support in the original disclosure. *See TurboCare Div. of Demag Delaval Turbomach. v. Gen. Elec. Co.*, 264 F.3d 1111, 1118 (Fed. Cir. 2001) (“When [an] applicant adds a claim . . . the new claim[] . . . must find support in the original specification.”). VCT has identified written description support in the originally filed disclosure of the subject patent for the new limitations added to the proposed substitute claims. Mot. Amend 3–5.

However, as Petitioner points out, VCT has failed to provide support for the portions of the substitute claims that are common to the corresponding cancelled claims. Oppos. Amend 2. As stated in *Lectrosonics*, “the motion must set forth written description support for each proposed substitute claim as a whole, and not just the features added by the amendment.” IPR2018-01129, Paper 15 at 8. Nevertheless, challenged independent claims 1 and 9 as issued were unchanged during prosecution

and were submitted with the original application. Ex. 2012, 38, 40. *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275, 1297 (Fed. Cir. 2017) (“Original claims are part of the original specification and in many cases will satisfy the written description requirement”). Therefore, we decline to deny the Motion to Amend on this basis.

Petitioner also argues substitute claim 28 is indefinite and lacks written description support, because the claim requirement, “buffering packets receiving on the wireless local area network connection,” is grammatically incorrect and inconsistent with the portion of the specification VCT cites for support. Oppos. Amend 3–4.¹¹ The as-filed specification on which VCT relies provides:

During the handoff between WLAN and GPRS, there is a possibility of packet loss because of unavailability of the wireless interface and the delay in registration. Packet loss for upstream traffic is reduced or eliminated by buffering the packets and retransmitting them after handoff completion. To buffer the packets that are transmitted using the WLAN NIC, a NetFilter mechanism is used, which is available in Linux kernel. Using NetFilters, packets that are going to be transmitted over the wireless NIC may be captured.

Mot. Amend 4; Ex. 2012, 30:12–21. Thus, as Petitioner points out, the specification is referring to the need to buffer packets being transmitted on the wireless local area network connection, rather than received. Oppos. Amend 4. However, packets that are transmitted on a network are also ultimately received. We are not persuaded that one of ordinary skill in the art would have found the claim language in question indefinite or

¹¹ Due to the claim numbering confusion discussed above, Petitioner refers to claim 27, which we refer to as claim 28.

unsupported — under the specified conditions of the claim, packets that are transmitted, and ultimately received, are buffered. Tr. 8.

3. Responding to a Ground of Unpatentability

37 C.F.R. § 42.121(a)(2)(i) states that “[a] motion to amend may be denied where . . . [t]he amendment does not respond to a ground of unpatentability involved in the trial.” In considering the motion, the entirety of the record is reviewed to determine whether a patent owner’s amendments respond to a ground of unpatentability involved in the trial.

The proposed substitute amendments add limitations in an attempt to distinguish the claimed subject matter over Natarajan and Brewer. Mot. Amend 5–6. As set forth above, Natarajan renders the original independent claims 1 and 9 obvious, and therefore, this predicate requirement is satisfied.

4. Not Enlarging the Scope of the Claims

As stated in 35 U.S.C. § 316(d)(3), an “amendment . . . may not enlarge the scope of the claims of the patent.” *See also* 37 C.F.R. § 42.121(a)(2)(ii) (“A motion to amend may be denied where . . . [t]he amendment seeks to enlarge the scope of the claims of the patent.”). “A new claim enlarges if it includes within its scope any subject matter that would not have infringed the original patent.” *Thermalloy, Inc. v. Aavid Eng’g, Inc.*, 121 F.3d 691, 692 (Fed. Cir. 1997).

Petitioner does not argue that the substitute claims enlarge the scope of the challenged claims, and upon review of the added limitations we determine that this predicate requirement is satisfied.

C. Obviousness of Claim 27 Over Natarajan and RFC-3024, and of Claim 28 Over Natarajan, Park, and RFC-2475

Petitioner argues claim 27 would have been obvious in light of Natarajan and RFC-3024, and claim 28 would have been obvious in light of

Natarajan, Park, and RFC-2475.¹² Oppos. Amend 6–13, 17–28. We note that VCT does not provide any counterarguments — it has not submitted a reply to Petitioner’s Opposition to the Motion to Amend, or appeared at the oral hearing. In analyzing Petitioner’s obviousness arguments, we refer to the foregoing discussions of claim construction, the applicable law of obviousness, the level of skill in the art, the disclosure of Natarajan, and the obviousness of challenged claims 1 and 9 in light of Natarajan, as well as the following.

1. Claim 27

As an initial matter, we determine that the elements of claim 27 common to challenged independent claim 1 would have been taught or suggested by the disclosure of Natarajan as discussed above. Pet. 12–18; Oppos. Amend 6.

The additional element of claim 27, “wherein the mobile node includes a signal strength monitor for monitoring a signal strength when communicating with the first foreign agent, wherein the mobile node initiates the vertical handoff to the second foreign agent when the signal strength falls below a predetermined threshold,” is in substance a restatement of the limitations of challenged dependent claims 2 and 6, and would have been taught or suggested by Natarajan as discussed above.

¹² Petitioner asserts in the alternative that claim 27 would have been obvious in light of Brewer, Sanmateu, and RFC-3024, and that claim 28 would have been obvious in light of Brewer, Sanmateu, Park, and Mahonen (Ex. 1036). Oppos. Amend 13–17, 28–35. Because we have determined unpatentability of claim 27 based on Natarajan and RFC-3024, and of claim 28 based on Natarajan, Park, and RFC-2475, we do not reach these alternative grounds of unpatentability for claims 27 and 28.

Oppos. Amend 6–10 (citing Rysavy Decl. ¶¶ 66, 72, 74; Rysavy 2nd Decl. ¶¶ 16–19).

The record establishes that the additional element, “wherein during the vertical handoff the mobile node establishes a tunnel to the second foreign agent while maintaining an IP address, wherein the tunnel is in addition to an IP-IP channel between the second foreign agent and the home agent,” is in substance the well-known “reverse tunneling” extension of Mobile IP taught by RFC-3024, discussed above. Based on Petitioner’s un rebutted expert testimony, we determine that one of ordinary skill in the art would have been motivated to implement the RFC-3024 reverse tunneling, and in particular a form of reverse tunneling referred to as “Encapsulating Delivery Style,” in the system taught by Natarajan in accord with this claim limitation. Oppos. Amend 10–13 (citing Rysavy Decl. ¶¶ 25–26, 70; Rysavy 2nd Decl. ¶¶ 29–33).

Accordingly, we determine that Petitioner has proven by a preponderance of the evidence that substitute claim 27 would have been obvious in light of Natarajan and RFC-3024. Therefore, the Motion to Amend is denied as to substitute claim 27.

2. Claim 28

The elements of claim 28 common to challenged independent claim 9 would have been taught or suggested by the disclosure of Natarajan as discussed above. Pet. 26–29; Oppos. Amend 18.

Claim 28 additionally requires determining a strength of the wireless local area network connection to be below a threshold strength “by computing an average of the strength using a fixed number of samples and comparing the average to the threshold strength.” Mot. Amend 10.

Although, as discussed above, Natarajan taught or suggested determining such a threshold, it does not explicitly disclose the claimed averaging details of that determination. Oppos. Amend 19–20. Petitioner relies on Natarajan in combination with U.S. Patent Publication No. US 2004/0044887 A1 to Park et al. (Ex. 1034, “Park”) as having taught or suggested the claimed determination. Oppos. Amend 19–22.

Park discloses using WLAN signal strength to make handoff decisions, using a number of signal strength samples to compute an average for use in handoff determination. Ex. 1034, ¶¶ 25–27, 38. Based on Petitioner’s unrebutted expert testimony, we determine that one of ordinary skill in the art would have recognized Park’s teachings as useful for the Natarajan system, and been motivated to incorporate those teachings into Natarajan, including determining a signal strength by “computing an average of the strength using a fixed number of samples and comparing the average to the threshold strength.” Oppos. Amend 19–22 (citing Rysavy 2nd Decl. ¶¶ 41–44).

Claim 28 also additionally requires “when the average is below the threshold strength, buffering packets receiving on the wireless local area network connection.” Mot. Amend 10. Because claim 28 is a method claim, and this requirement is conditional on whether or not the average is below the signal strength, it need not be performed to satisfy the claim. Oppos. Amend 22; *Ex Parte Schulhauser*, No. Appeal 2013-007847, 2016 WL 6277792, at *5 (PTAB Apr. 28, 2016) (“If the condition for performing a contingent step is not satisfied, the performance recited by the step need not be carried out in order for the claimed method to be performed.”) (*quoting*

Cybersettle, Inc. v. Nat'l Arbitration Forum, Inc., 243 Fed. Appx. 603, 607 (Fed. Cir. 2007) (unpublished)) (precedential).

In addition, based on Petitioner's un rebutted expert testimony, we determine that it would have been obvious to one of ordinary skill in the art that, in the Natarajan system, the Foreign Agent of the WLAN would have continued to receive packets on the WLAN, from the Mobile Node when the signal strength average fell below the threshold, and buffered those packets received on the WLAN connection. Oppos. Amend 22–25 (citing Rysavy 2nd Decl. ¶¶ 45–48).

Finally, Claim 28 additionally requires “determining a priority for each of the packets in the buffer; and transmitting the packets in order of the priority from high to low.” Mot. Amend 10. These limitations rely on the above buffering limitation for antecedent basis, and so also are conditional, and need not be performed to satisfy the claim. Oppos. Amend 22–23. *Schulhauser*, 2016 WL 6277792, at *6.

In addition, Petitioner relies on RFC-2475, Blake et al., *An Architecture for Differentiated Services* (December 1998) (Ex. 1035, “RFC-2475”), in combination with Natarajan and Park, as having taught or suggested these additional packet transmission details. Oppos. Amend 25–28. The record establishes that the technology described in RFC-2475 was typically implemented on network routers, and used priority information in the IP packet header to tell the router the transmission priority of the packet. Oppos. Amend 25–26 (citing Rysavy 2nd Decl. ¶ 50). Based on Petitioner's un rebutted expert testimony, we determine that it would have been obvious to one of ordinary skill in the art to implement in the WLAN Foreign Agent

of Natarajan's the packet prioritization taught by RFC-2475. Oppos. Amend 26–28 (citing Rysavy 2nd Decl. ¶¶ 51–53).

Accordingly, we determine that Petitioner has proven by a preponderance of the evidence that substitute claim 28 would have been obvious in light of Natarajan, Park, and RFC-2475. Therefore, the Motion to Amend is denied as to substitute claim 28.

V. CONCLUSION¹³

In summary:

Claims	35 U.S.C. §	References	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–4, 6–10	103(a)	Natarajan	1–3, 6–10	
4	103(a)	Natarajan, Perkins	4	
5	103(a)	Natarajan, RFC- 3024	5	
9–11	103(a)	Natarajan, Stevens	11	
1–4, 6, 7, 9–11	103(a)	Brewer		
2, 6, 9–11	103(a)	Brewer, Sanmateu		
5	103(a)	Brewer, RFC- 3024		
8	103(a)	Brewer, Pahlavan		
Overall Outcome			1–11	

Motion to Amend Outcome	Claim(s)
Original Claims Cancelled by Amendment	1–11
Substitute Claims Proposed in the Amendment	27, 28
Substitute Claims: Motion to Amend Granted	

¹³ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

Substitute Claims: Motion to Amend Denied	27, 28
Substitute Claims: Not Reached	

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has demonstrated by a preponderance of the evidence that claims 1–11 of the '917 patent are *unpatentable*; and

FURTHER ORDERED that VCT's Motion to Amend is *denied*;

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

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U.S. Patent 7,245,917 B2

FOR PETITIONER:

Andrew Mason
Todd Siegel
Sarah Jelsema
John Vandenberg
KLARQUIST SPARKMAN, LLP
Andrew.mason@klarquist.com
Todd.siegel@klarquist.com
Sarah.jelsema@klarquist.com
John.vandenberg@klarquist.com

FOR PATENT OWNER:

Timothy Salmon
Daniel Mitry
VERTICAL CONNECTION TECHNOLOGIES LLC
Tsalmon@empireipllc.com
dmitry@empireipllc.com