

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC, CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,
VERIZON CORPORATE SERVICES GROUP INC.,
T-MOBILE USA, INC., SPRINT LLC F/K/A SPRINT CORP.,
and AT&T SERVICES, INC.,
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

IPR2024-00945
Patent 9,215,613 B2

Before HYUN J. JUNG, SCOTT B. HOWARD, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BELISLE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Google LLC, Cellco Partnership d/b/a Verizon Wireless, Verizon Corporate Services Group Inc., T Mobile USA, Inc., Sprint LLC f/k/a Sprint Corp., and AT&T Services, Inc. (collectively “Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–24 (“Challenged Claims”) of U.S. Patent No. 9,215,613 B2 (Ex. 1001, “the ‘613 patent”). Headwater Research LLC (“Patent Owner”) filed a Preliminary Response. Paper 9 (“Prelim. Resp.”). With our authorization, Petitioner and Patent Owner filed a Pre-Institution Reply and Pre-Institution Sur-reply, respectively, to the Preliminary Response concerning discretionary denial issues. Papers 10 (“Prelim. Reply”), 12 (“Prelim. Sur-reply”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b) (2024); 37 C.F.R. § 42.4(a) (2023). We may not institute an *inter partes* review “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). The “reasonable likelihood” standard is “a higher standard than mere notice pleading” but “lower than the ‘preponderance’ standard to prevail in a final written decision.” *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 13 (PTAB Dec. 20, 2019) (precedential). When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim. 37 C.F.R. § 42.108(a).

Applying those standards, and upon consideration of the information presented in the Petition, Preliminary Response, and supplemental briefing,

we determine that Petitioner has not demonstrated a reasonable likelihood of success in proving that any of the Challenged Claims is unpatentable. *See* 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). Accordingly, we deny institution of an *inter partes* review of the '613 patent.

II. BACKGROUND

A. Real Parties in Interest

Petitioner identifies Google LLC, Cellco Partnership d/b/a Verizon Wireless, Verizon Corporate Services Group Inc., T-Mobile USA, Inc., Sprint LLC f/k/a Sprint Corp., AT&T Services, Inc., AT&T Mobility LLC, and AT&T Enterprises LLC as the real parties in interest. Pet. 67.

Patent Owner identifies Headwater Research LLC as the real party in interest. Paper 7, 1 (Patent Owner's Mandatory Notices).

B. Related Matters

Petitioner indicates that “[t]he '613 patent is, or has been, involved” in the following proceedings:

1. *Headwater Research LLC v. Verizon Communications Inc.*, 2:23-cv-00352 (E.D. Tex. Jul. 28, 2023)
2. *Headwater Research LLC v. AT&T Inc.*, 2:23-cv-00397 (E.D. Tex. Sept. 1, 2023)
3. *Headwater Research LLC v. AT&T Inc.*, 2:23-cv-00398 (E.D. Tex. Sept. 1, 2023)
4. *Headwater Research LLC v. T-Mobile US, Inc.*, 2:23-cv-00377 (E.D. Tex. Aug. 21, 2023)
5. *Headwater Research LLC v. T-Mobile US, Inc.*, 2:23-cv-00379 (E.D. Tex. Aug. 21, 2023).

Pet. 68. Petitioner further indicates that above proceedings 2 and 3 have been consolidated and above proceedings 4 and 5 have been

consolidated. *Id.*, nn.6–7. Patent Owner identifies the above proceedings, but omits separately listing proceedings 3 and 5. Paper 7, 1.

C. The '613 Patent

The '613 patent is titled “Wireless End-User Device with Differential Traffic Control Policy List Having Limited User Control,” and issued December 15, 2015, from U.S. Patent Application No. 14/685,511, filed April 13, 2015. Ex. 1001, codes (10), (21), (22), (45), (54). The '613 patent claims priority through a lengthy series of continuation applications to several U.S. provisional applications, the earliest of which was filed January 28, 2009. *Id.* at codes (60), (63).

The '613 patent relates generally to software of a “wireless end-user device” aimed at addressing the “growing digital networking demand” for user capacity without “degrad[ing] overall network service experience” (e.g., without overly “consum[ing] the available [network] capacity”). Ex. 1001, 1:1–35.

The '613 patent summarizes itself as follows:

A wireless end-user device has wireless wide-area network (WWAN) and wireless local-area network (WLAN) modems. One or more processors classify whether an application is interacting with a user in a user interface foreground of the device. At a time when Internet service activities are communicated through a first wireless network type, the processors use a differential traffic control policy list to determine whether or not to apply a differential traffic control policy to Internet service activities for an application. When the policy is applicable, the policy may direct that Internet service activities by the application are blocked. A user of the device is allowed to augment the policy that will be applied for applications specified as controlled by the list, but not for other applications and/or services.

Ex. 1001, code (57); *see also* 37 C.F.R. § 1.72 (“The purpose of the abstract is to enable the Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure.”).

Figure 14 of the '613 patent is reproduced below.

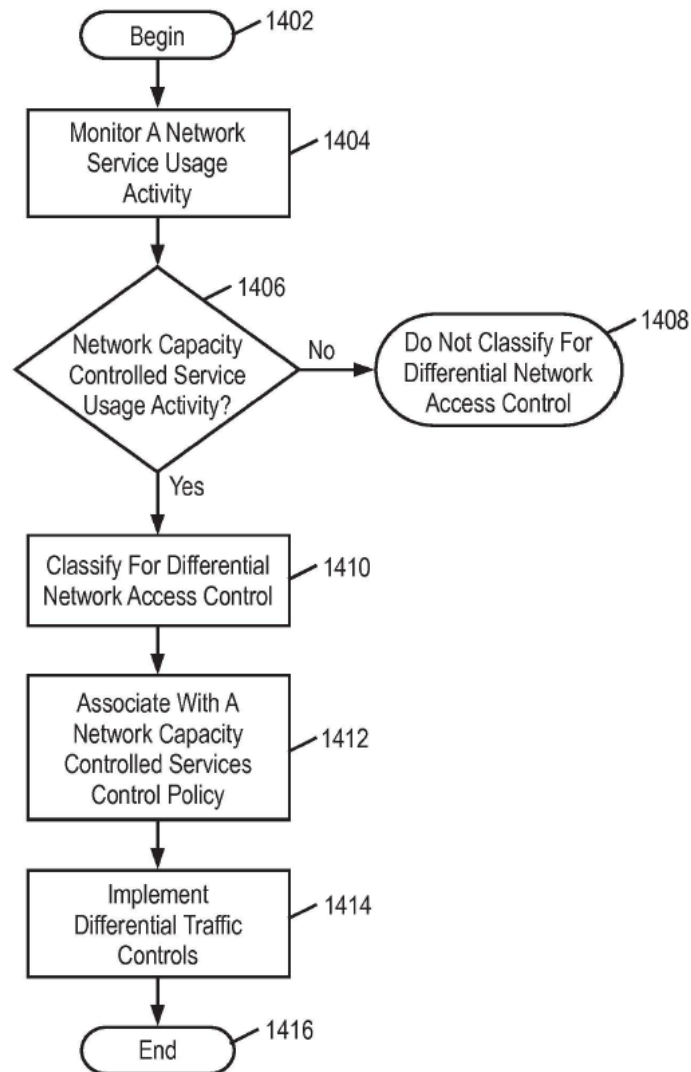


FIG. 14

Figure 14 depicts a flow diagram for device assisted services (DAS) for protecting network capacity.

Ex. 1001, 2:19–21, Fig. 14; *see also id.* at 62:43–63:9 (describing Figure 14).

As shown above in Figure 14, step 1402 begins the process.

Ex. 1001, 62:45. Step 1404 monitors the network service usage activity of a wireless network device. *Id.* at 62:45–48. Step 1406 determines whether the monitored network service usage activity is a network capacity controlled service. *Id.* at 62:48–50. If the answer is no, then at step 1408, “the network service usage activity is not classified for differential network access control.” *Id.* at 62:50–53. But, if the answer is yes, then “the network service usage activity is classified (e.g., into one or more network capacity controlled services) for differential network access control for protecting network capacity.” *Id.* at 62:53–58. The “classifying the network service usage activity includes classifying the network service usage activity into one or more of a plurality of classification categories for differential network access control for protecting network capacity,” such as “a background services classification and/or a background priority state classification.” *Id.* at 62:59–66. Based on the particular classification of the network service usage activity for differential network access control (e.g., “background services classification”), step 1412 associates the network service usage activity with a network capacity controlled services control policy to facilitate differential network access control for protecting network capacity. *Id.* at 62:66–63:3. Step 1414 implements differential network access control for protecting network capacity by implementing different traffic controls for all or some of the network service usage activities (e.g., based on a network busy state or another criteria/measure). *Id.* at 63:4–8. Step 1416 completes the process. *Id.* at 63:8–9.

Figure 18 of the '613 patent is reproduced below.

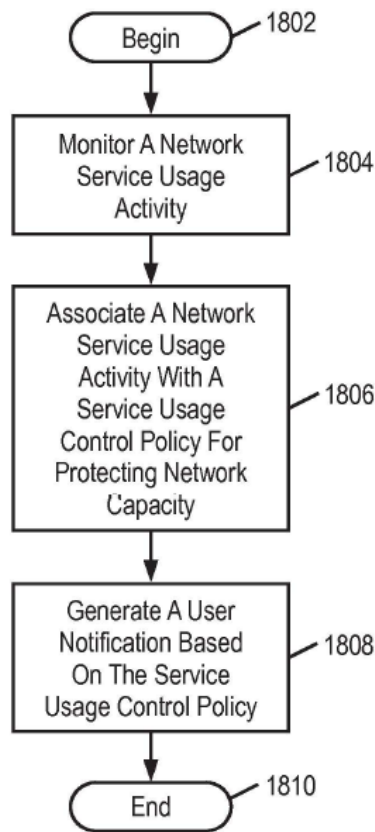


FIG. 18

Figure 18 depicts another flow diagram for device assisted services (DAS) for protecting network capacity.

Ex. 1001, 2:31–33, Fig. 18; *see also id.* at 64:26–39 (describing Figure 18).

As shown above in Figure 18, step 1802 begins the process.

Ex. 1001, 64:28. Step 1804 monitors the network service usage activities of a wireless network device. *Id.* at 64:28–30. Step 1806 associates a network service usage activity (e.g., a network capacity controlled service) with a service usage control policy (e.g., a network capacity controlled services policy) based on a classification of the network service usage activity for

differential network access control for protecting network capacity. *Id.* at 64:30–37. Step 1808 generates a user notification based on the service usage control policy. *Id.* at 64:37–38. Step 1810 completes the process. *Id.* at 64:38–39.

The '613 patent also states that device assisted services (DAS) for protecting network capacity include providing a network access application programming interface (API) or an emulated or virtual network access API, where such an API “can provide network busy state information and/or other criteria/measures and/or provide a mechanism for allowing, denying, delaying, and/or otherwise controlling network access.” Ex. 1001, 62:19–25.

D. Illustrative Claim

The '613 patent includes twenty-four claims, all of which are challenged. Independent claim 1, the sole independent claim, is illustrative of the claimed subject matter and is reproduced below with labels, such as “[1.0],” added to limitations in the same manner as used by the parties.

1. [1.0] A wireless end-user device, comprising:
 - [1.1] a wireless wide area network (WWAN) modem to communicate data for Internet service activities between the device and at least one WWAN, when configured for and connected to the WWAN;
 - [1.2] a wireless local area network (WLAN) modem to communicate data for Internet service activities between the device and at least one WLAN, when configured for and connected to the WLAN;
 - [1.3] a non-transient memory to store
 - [1.3.1] a differential traffic control policy list distinguishing between a first one or more applications resident on the

- device and a second one or more applications and/or services resident on the device, and
- [1.3.2] a differential traffic control policy applicable to at least some Internet service activities by or on behalf of the first one or more applications;
- [1.4] an interface to allow a user to augment the differential traffic control policy for the first one or more applications but not for the second one or more applications and/or services; and
- [1.5] one or more processors configured to
 - [1.5.1] classify a wireless network to which the device currently connects in order to communicate data for Internet service activities as at least one of a plurality of network types that the device can connect with,
 - [1.5.2] classify whether a particular application capable of both
 - [1.5.2.1] interacting with the user in a user interface foreground of the device, and
 - [1.5.2.2] at least some Internet service activities when not interacting with the user in the device user interface foreground,
 - [1.5.2.3] is interacting with the user in the device user interface foreground, and
- [1.6] selectively allow or deny one or more Internet service activities by or on behalf of the particular application based on whether or not the particular application is one of the first one or more applications, the differential traffic control policy, including any applicable user augmentation of the differential traffic control policy, and the classifications performed by the one or more processors.

Ex. 1001, 105:51–106:25.

E. Evidence of Record

Petitioner relies on the following patent and published patent application evidence.

Name	Patent Document	Exhibit
Rao	U.S. Patent Appl. Pub. No. 2006/0039354 A1, published February 23, 2006	1004
Montemurro	U.S. Patent Appl. Pub. No. 2009/0207817 A1, published August 20, 2009	1005
Araujo	U.S. Patent Appl. Pub. No. 2009/0217065 A1, published August 27, 2009	1006
Freund	U.S. Patent No. 5,987,611, issued November 16, 1999	1007

Pet. 1, 3–10.

Petitioner also relies upon the Declaration of Henry Houh, Ph.D.
(Ex. 1003).

Patent Owner relies upon the Declaration of Mr. Erik de la Iglesia
(Ex. 2001).

F. Asserted Challenges to Patentability

Petitioner challenges the patentability of claims 1–24 of the
'613 patent on the following bases (Pet. 1).

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–14, 16, 18–23	103 ¹	Rao, Montemurro, Freund
15, 17, 24	103	Rao, Montemurro, Freund, Araujo

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103 effective on March 16, 2013. Neither party argues that the outcome of this case would differ based on applying the pre-AIA or post-AIA versions of these laws.

III. PATENTABILITY

A. Applicable Law

Petitioner challenges the patentability of claims 1–24 of the '613 patent on grounds that the claims would have been obvious under 35 U.S.C. § 103 in light of various references, namely Rao, Montemurro, Freund, and Araujo. “In an [*inter partes* review], the petitioner has the burden from the onset to show *with particularity* why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)) (emphasis added). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is unpatentable under 35 U.S.C. § 103 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 skill in the art; and (4) when of record, objective evidence of obviousness or non-obviousness, i.e., secondary considerations. *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966). Secondary considerations may include the following: “commercial success, long felt

but unsolved needs, failure of others, etc.”² *Id.* The totality of the evidence submitted may show that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *Id.* at 415. Whether a patent claiming a combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To reach this conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.* “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

² Patent Owner has not presented objective evidence of non-obviousness.

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art, at the time of the invention of the '613 patent:

would have had at least a bachelor's degree in computer science, computer engineering, or a similar field, and approximately two years of industry or academic experience in a field related to computer software development and/or computer networking. Work experience can substitute for education, and additional education can substitute for work experience.

Pet. 3 (citing Ex. 1003 ¶ 61) (internal citations omitted).

Patent Owner does not present an alternative definition at this stage of the proceeding. *See* Prelim. Resp. 5–6 (“For purposes of this Preliminary Response, Patent Owner does not challenge that definition.”).

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The level of ordinary skill in the art also may be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Neither party argues, at least at this stage of the proceeding, that the outcome of this case would differ based on our adoption of any particular definition of the level of ordinary skill in the art. Considering the subject matter of the '613 patent, the background technical field, the prior art, and

Petitioner’s proposed and unopposed definition of the skilled artisan (Ex. 1003 ¶ 61), we apply the level of skill set forth above.

C. Claim Construction

Neither Petitioner nor Patent Owner proposes any claim terms for construction. Pet. 3 (“No terms require construction to resolve this Petition.”); Prelim. Resp. 6 (“Patent Owner agrees that no formal claim construction is necessary.”). We do not find that the express construction of any term is necessary for this decision. See *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”); *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

D. Alleged Obviousness of Claims 1–14, 16, and 18–23 over the Combination of Rao, Montemurro, and Freund

Petitioner contends claims 1–14, 16, and 18–23 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Rao (Ex. 1004), Montemurro (Ex. 1005), and Freund (Ex. 1007). Pet. 3–9, 11–57. Patent Owner opposes Petitioner’s contentions. Prelim. Resp. 6–28. Based on our review of the record before us, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that sole independent claim 1 (and thus any Challenged Claim) would have been unpatentable as obvious over the combination of Rao, Montemurro, and Freund, as discussed below. We turn first to an overview of Rao, Montemurro, and Freund.

1. Overview of Rao (Ex. 1004)

Rao generally is directed to “optimizing peer-to-peer network communications, and in particular, to techniques for application-aware prioritizations of network communications on a client.” Ex. 1004 ¶ 2.

Rao identifies a problem of processing network communications in the order the communications are generated by client applications of a user’s device. Ex. 1004 ¶ 3. For example, Rao explains that “although an application is running in the foreground and currently in active use by the user, a network packet generated or received for an application running in the background may be processed ahead of a network packet generated or received for the application running in the foreground.” *Id.* Rao states that “[i]t is desirable to provide application-aware, client-specific prioritization of packet traffic.” *Id.*

Rao’s Figure 1C is reproduced below.

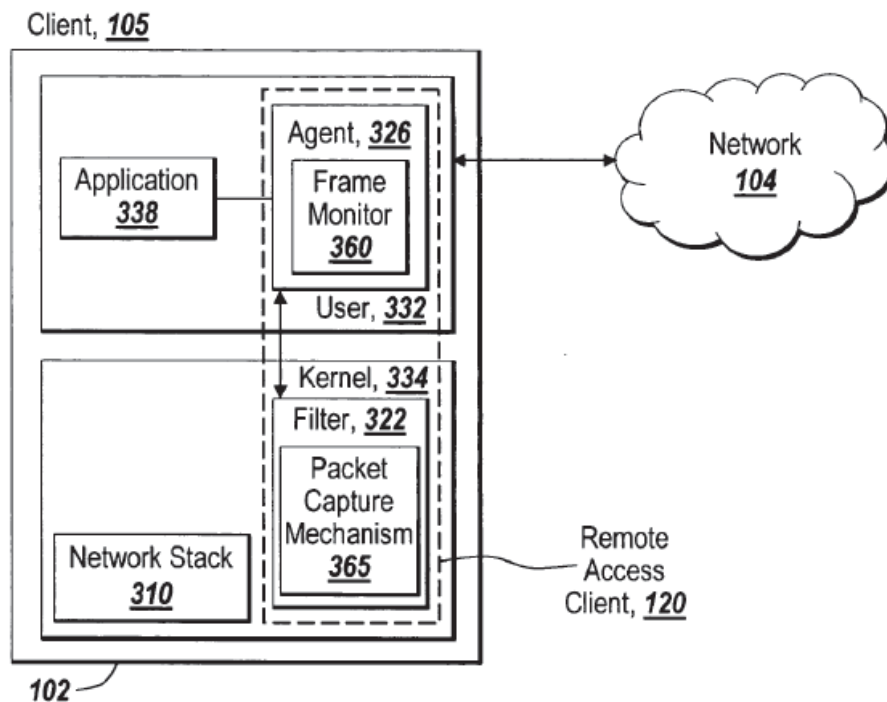


Figure 1C depicts a block diagram of a remote access client for network communications.

Ex. 1004 ¶ 62, Fig. 1C. Figure 1C shows computing device 102 operating as client 105 via network 104 and including user space 332 and kernel space 334. *Id.* ¶ 99. User space 332 includes application 338, agent 326, and frame monitor 360 (of the agent 326) having logic that applies policies to received network packets. *Id.* ¶¶ 99, 108. Kernel space 334 includes network stack 310, filter 322 that determines action taken upon packets, and packet capture mechanism (PCM) 365 (of filter 322) that intercepts network packets. *Id.* ¶¶ 99–104, 180.

Agent 326 and filter 322 form the remote access client (RAC) 120.

Ex. 1004 ¶ 99. Agent 326 provides RAC 120 a filtering table that PCM 365 of RAC 120 uses to selectively intercept/forward outbound network packets to frame monitor 360 of agent 326. *Id.* ¶ 104.

Rao's Figure 5A is reproduced below.

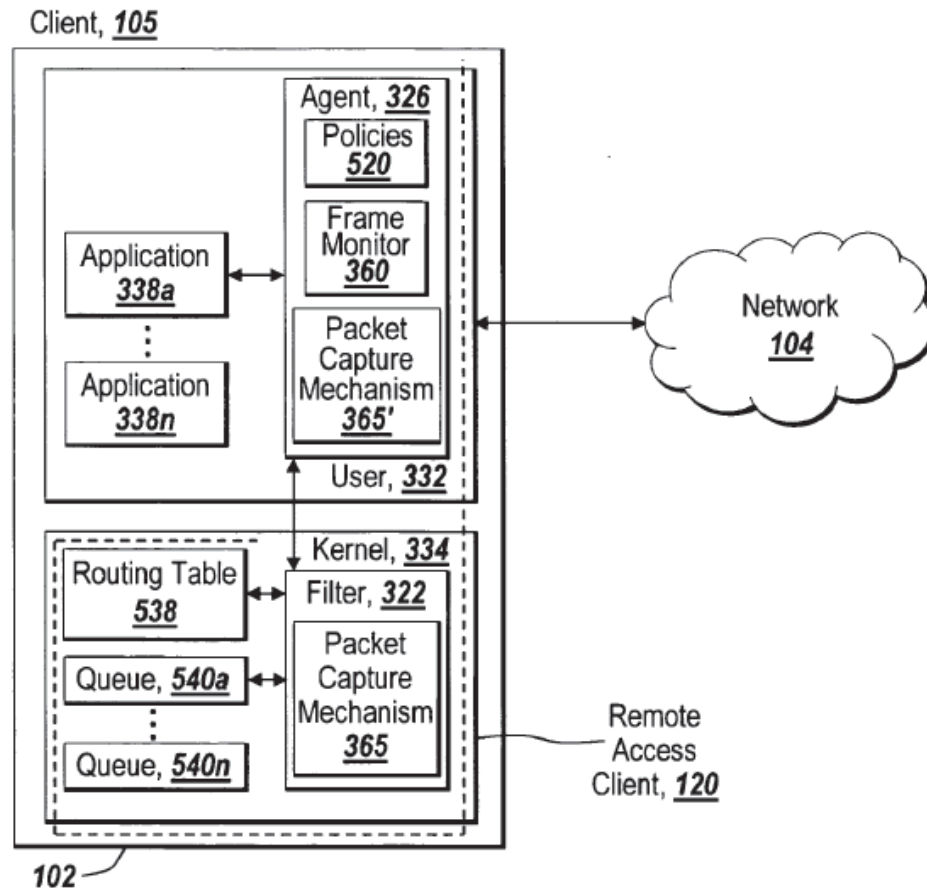


Figure 5A depicts a block diagram of a client environment for providing client-side application-aware prioritization techniques.

Ex. 1004 ¶ 70, Fig. 5A. Figure 5A shows client computing device 102, 105 similar, but not identical to, the one shown in Figure 1A. *Compare* Fig. 5A, *with* Fig. 1A.

Unlike in the Figure 1A embodiment, RAC 120 of the kernel space 334 includes queues 540a–540n that queue and prioritize network packets intercepted by PCM 365. Ex. 1004 ¶ 180. Queues 540a–540n are associated with respective applications 338a–338n of client 105 and

organized by levels of priority, e.g., high, medium, low. *Id.* Routing table 538 dictates how agent 326 routes the network packets. *Id.* ¶ 181.

Further, unlike in the Figure 1A embodiment, RAC 120 of user space 332 includes policies 520 specifying client-side prioritizations of network packets generated by the applications 338a–338n. Ex. 1004 ¶ 182. For example, the policies may prioritize, based on the respective communication protocols of applications 338a–338n, the payload sizes of the network packets, and/or whether a given application is running in the foreground or background of client 105. *Id.*

Rao's Figure 5B is reproduced below.

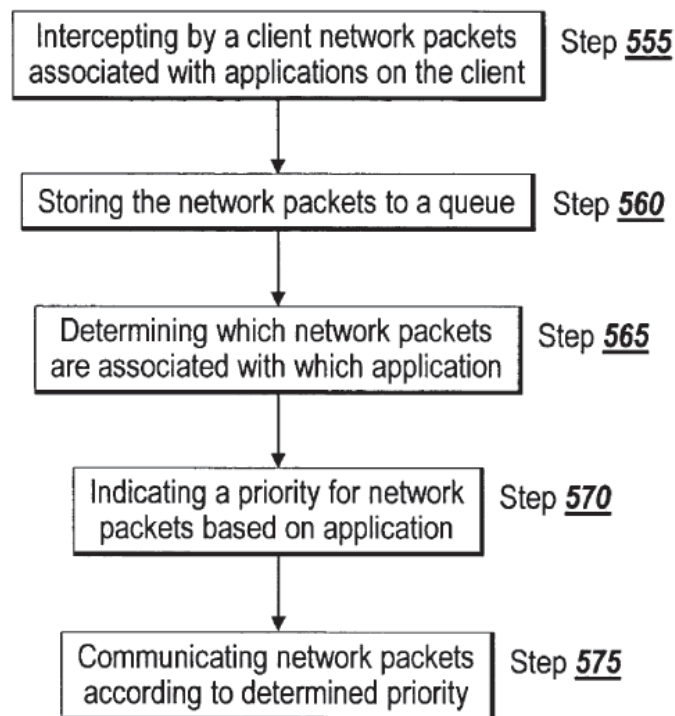


Figure 5B depicts a flow diagram of the steps performed to provide client-side application-aware prioritization.

Ex. 1004 ¶ 71, Fig. 5B. Figure 5B illustrates client-side application-aware prioritization of the Figure 1A and Figure 5A embodiments. *Id.* ¶ 184.

Step 555 intercepts a network packet generated by one of applications 338a–338n. *Id.* Step 560 stores the intercepted network packet to one of queues 540a–540n. *Id.* Step 565 determines a priority of the intercepted, queued network packet based on the priority for the respective one of applications 338a–338n. *Id.* Steps 570 and 575 respectively indicate the determined priority for the network packet and accordingly communicate the network packet. *Id.*

We further discuss below the disclosures of Rao in connection with the parties' arguments.

2. Overview of Montemurro (Ex. 1005)

Montemurro generally is directed to “a system and method for operation of a multi-mode wireless communication device and more particularly to policy-based routing of communications among two or more modes of wireless communication.” Ex. 1005 ¶ 1.

Montemurro discloses that “[c]ommunication devices capable of at least two communication modes (e.g. WLAN, WMAN and WWAN and/or wired modes) can be configured to optimize communications using a policy-based mechanism to configure connections and routes.” Ex. 1005, code (57). In this context, “[a] rules engine evaluates its policies on a state change (e.g. network availability, time of day, etc.) to configure a routing table and, together with communication APIs, provides an appropriate connection to an application for its respective communications.” *Id.* Montemurro discloses that “[p]olicies may be responsive to various factors such as Radio Access Technology (high/low bandwidth), cost, presence, time of day, location, application type and quality of service (QoS) requirements among others to optimize communications.” *Id.*

We further discuss below the disclosures of Montemurro in connection with the parties' arguments.

3. Overview of Freund (Ex. 1007)

Freund, filed in 1997, generally is directed to “[a] system and methods for regulating access and maintaining security of individual computer systems and local area networks (LANs) connected to larger open networks (Wide Area Networks or WANs), including the Internet.” Ex. 1007, 1:25–30.

Freund's system “includes one or more clients, each operating applications or processes (e.g., Netscape Navigator™ or Microsoft Internet Explorer™ browser software) requiring Internet (or other open network) access (e.g., an Internet connection to one or more Web servers).” Ex. 1007, code (57). “Client-based monitoring and filtering of access is provided in conjunction with a centralized enforcement supervisor,” where the supervisor “maintains access rules for the client-based filtering and verifies the existence and proper operation of the client-based filter application.” *Id.* Freund discloses that such “access rules” may be used in restricting client access to the Internet:

Access rules which can be defined can specify criteria such as total time a user can be connected to the Internet (e.g., per day, week, month, or the like), time a user can interactively use the Internet (e.g., per day, week, month, or the like), a list of applications or application versions that a user can or cannot use in order to access the Internet, a list of URLs (or WAN addresses) that a user application can (or cannot) access, a list of protocols or protocol components (such as Java Script™) that a user application can or cannot use, and rules to determine what events should be logged (including how long are logs to be kept).

Id.; *see id.* at 10:16–43. Freund discloses that “each client process can be checked for various characteristics, including checking executable names, version numbers, executable file checksums, version header details, configuration settings, and the like,” and with this information, “the system can determine if a particular process in question should have access to the Internet and what kind of access (i.e., protocols, Internet addresses, time limitations, and the like) is permissible for the given specific user.” *Id.* Such “access rules” also may be qualified by specifying “what should happen if a rule is violated (e.g., denying Internet access, issue a warning, redirecting the access, creating a log entry, or the like).” *Id.* at 4:19–28; 13:13–22.

Freund also monitors “active use” of the Internet, and discloses that such “[a]ctive use occurs when a user directly interacts with an Internet application (e.g., Web browser) while that application accesses the Internet.” Ex. 1007, 10:16–20. Freund explains that “[t]his is distinguished from *background use* which occurs when an application or process executing in the background (i.e., does not have ‘focus’) accesses the Internet, such as a mail client which intermittently polls an Internet-based mail server.” *Id.* at 10:20–24 (emphasis added). In the context of “background use,” “certain Internet applications, such as news collecting programs (e.g., PCN), access the Internet in the background while the user attends to other unrelated tasks in the foreground.” *Id.* at 10:24–27.

We further discuss below the disclosures of Freund in connection with the parties’ arguments.

4. *Analysis of Independent Claim 1*

Claim 1 recites, in relevant part, “[1.5] one or more processors configured to [1.5.1] *classify a wireless network* to which the device *currently connects* in order to communicate data . . . [1.5.2] *classify whether a particular application* . . . is interacting with the user in the device user interface *foreground*, and [1.6] *selectively allow or deny one or more Internet service activities* by or on behalf of the particular application *based on . . . the classifications* performed by the one or more processors.”

Ex. 1001, 106:5–25. Thus, claim 1 explicitly requires one or more processors configured to make a selective allowance or denial decision for at least one Internet service activity corresponding to an application based on *both* of two classifications: (1) a classification of a wireless network to which the device *currently connects*, *and* (2) a classification of whether the application is interacting with the user in the device interface foreground. *See id.*; *see also* Prelim. Resp. 6–7. In view of the plain meaning of the terms in these limitations, we find (and agree with Patent Owner) that, “[b]ecause the first ‘classification’ is a classification of a network ‘to which the device *currently connects*,’ the selective denial or allowance of an Internet service activity must occur during an active network connection (and must also be based on a foreground classification).” *Id.* at 7 (citing Ex. 2001 ¶¶ 34–35); Ex. 2001 ¶¶ 34–35.

The parties dispute whether the combination of Rao, Montemurro, and Freund teaches or fairly suggests to the skilled artisan selectively allowing or denying an Internet service activity corresponding to an application based on both of two classifications: (1) a classification of a wireless network to which the device currently connects, and (2) a classification of whether the

application is interacting with the user in the device interface foreground.

We turn first to Petitioner's position.

a. Petitioner's Arguments

As for limitation 1.5.1 (classifying a wireless network to which a device currently connects), Petitioner proffers only Montemurro as allegedly teaching such features. Pet. 25–26. In particular, Petitioner argues “Montemurro describes a ‘routing table’ that ‘updates according to which interfaces 208 [e.g., modems] are available.’” Pet. 25. Petitioner argues the skilled artisan “would have understood that when Montemurro’s interfaces are ‘connected to their respective networks,’ the wireless network is one to which the device currently connects in order to communicate data (e.g., packets) for internet service activities,” and “by classifying the network based on the interface it uses (e.g., WLAN or WWAN), Montemurro classifies the network as ‘at least one of the plurality of types that the device can connect with.’” Pet. 25 (citing Ex. 1003 ¶¶ 168–171). Petitioner argues the skilled artisan also would have understood “that classifying the available wireless networks to which the device currently connects by type, as Montemurro suggests, is a predicate to implementing the multimode functionality Montemurro touts.” Pet. 26 (citing Ex. 1005 ¶¶ 11, 30–35; Ex. 1003 ¶ 173).

Petitioner does not present especially clearly how or why Montemurro allegedly teaches limitation 1.5.1, particularly given that the required wireless network classification of limitation 1.5.1 must in turn be used in selectively allowing or denying Internet service activities over that network

to which the device currently connects (see limitation 1.6).³ Indeed, Montemurro discloses “policy-based *routing* of communications among two or more modes of wireless communication” (Ex. 1005 ¶ 1 (emphasis added)), where Montemurro’s system tracks available communication modes via routing table 210 and interface state table 212 (*id.* ¶¶ 30–31). On the one hand, Montemurro uses policies to *route* (transmit) data over appropriate, already-known, wireless networks, without denying transmission of such data.⁴ On the other hand, limitation 1.5.1 (and limitation 1.6) does *not* merely route data without denial; rather, such limitations require (i) a wireless device to be “currently connect[ed]” to a wireless network to communicate data for Internet service activities, (ii) for the device to “classify” the type of that network over which such data is to be communicated, and (iii) selectively allow *or deny* such activities *based on that classification*. We find Petitioner’s arguments as to how Montemurro teaches limitation 1.5.1 in the context of claim 1 as a whole neither

³ See 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”).

⁴ See, e.g., Ex. 1005 ¶¶ 11 (“A rules engine evaluates its policies on a state change (e.g. network availability, time of day, etc.) to configure a routing table and, together with communication APIs, *provides an appropriate connection to an application for its respective communications.*” (emphasis added)), 31 (“When an IP packet is destined for transmission, the TCP/IP network stack software 206B matches the IP header of the packet to an entry in the routing table 210. *That match will determine which network interface 208 will be used for transmission of the packet.*” (emphasis added)) (both cited by Petitioner at Pet. 26).

especially clear nor sufficiently persuasive. We further discuss this below in the context of Patent Owner's response.

As for limitation 1.5.2 (classifying whether an application is interacting with the user in the device user interface *foreground*), Petitioner argues "Rao and Freund both explain that an application may operate in the foreground or the background of a user device." Pet. 26. Petitioner argues, "[w]hen applying its policy, Rao considers whether these applications are currently 'running in the foreground or the background,' confirming its applications are capable of either operation," and that "Freund similarly teaches that an application may be interacting in the user interface foreground of the device." Pet. 27 (citing Ex. 1003 ¶¶ 177, 182, 188; Ex. 1007, 10:16–43). Petitioner argues "[b]oth Rao and Freund teach that it is advantageous to classify whether a particular application (and its associated internet use) is interacting with the user in the device interface foreground." Pet. 27–28 (citing, *inter alia*, Ex. 1004 ¶¶ 182, 188; Ex. 1007, 10:16–43; Ex. 1003 ¶¶ 180–181).

As for the relevant features of limitation 1.6 (selectively allowing or denying Internet service activities based on both classifications of limitations 1.5.1 and 1.5.2), Petitioner proffers "Rao-Montemurro-Freund" teaches "selectively allow[ing] or deny[ing] one or more internet activities by or on behalf of [a] particular application," but also contends "[e]ach of the references suggests allowing/denying internet activities by particular applications." Pet. 28 (emphasis added). Petitioner argues Rao teaches that its system may "discard network packets," "drop' or 'accept' packets," and "deprioritiz[e] some packets," and that the skilled artisan would have understood that "discarded packets are 'denied' and packets queued and

transmitted are ‘allowed.’” Pet. 28–29 (citing, *inter alia*, Ex. 1003 ¶ 185). Petitioner argues “Montemurro similarly teaches denying internet service activities if a particular network is not available.” Pet. 29. Petitioner argues “Freund teaches that when its rules are violated (e.g., through overuse of an application), its system ‘den[ies] internet access,’” and that “denying access (blocking) may be advantageous ‘when network traffic is already congested.’” Pet. 29 (citing Ex. 1007, 13:13–22, 27:9–14, Fig. 14). Petitioner concludes that these disclosures would have taught the skilled artisan to “selectively deny and allow internet service activities.” Pet. 30.

Petitioner also proffers “Rao-Montemurro-Freund teaches that the decision to selectively allow or deny is further based on the classifications of [1.5.1] and [1.5.2] (e.g., the network type and whether an application is interacting with the user in the device user interface foreground).” Pet. 31. Petitioner relies on its arguments for limitation 1.5.1 (discussed above) to allege that “Rao-Montemurro-Freund teaches multimode operation, in which particular internet service activities are allowed or denied based on what network the device is using,” and that this teaches selectively allowing or denying Internet service activities based on a classification of the type of network to which a wireless device is currently connected. Pet. 31. Similarly, Petitioner relies on its arguments for limitation 1.5.2 (discussed above) to allege that “Rao-Montemurro-Freund teaches selectively allowing or denying an internet service activity based on whether the associated application is operating in the background or the foreground.” Pet. 31–32; *but see* Prelim. Resp. 7 (“Other than its reference to the Petition’s analysis of limitation [1.5.2], the Petition provides no other analysis as to how the prior art discloses this particular requirement of limitation [1.6].”).

We find Petitioner’s arguments as to how “Rao-Montemurro-Freund” teaches limitation 1.6, particularly where such arguments are based solely on wholesale reference to arguments for separate limitations 1.5.1 and 1.5.2, neither especially clear nor sufficiently persuasive. We further discuss this below in the context of Patent Owner’s response.

b. Patent Owner’s Arguments and Analysis

Patent Owner argues, in Petitioner’s combination of Rao, Montemurro, and Freund, only Rao and Freund are alleged to disclose the “foreground” classification features of limitations 1.5.2 and 1.6, but neither Rao nor Freund (alone or in combination with Montemurro) teaches or suggests a system that would selectively allow or deny Internet service activities based on *both* recited classifications. *See* Prelim. Resp. 8; Ex. 2001 ¶ 36. We find Patent Owner’s argument persuasive, for the same reasons and evidence proffered by Patent Owner as outlined below.

(1) Rao

As for Rao, Patent Owner argues that the cited disclosures that Petitioner relies on to show the feature of selectively allowing or denying Internet service activities in limitation 1.6 fall into two categories, namely (i) “Rao’s teachings that certain packets should be prioritized over other packets,” and (ii) “Rao’s teachings that certain packets may be ‘dropped’ or ‘discarded.’” Prelim. Resp. 8. Patent Owner argues “none of Rao’s teachings in either category disclose . . . the claimed ‘selective[] allow[ance] or den[ial]’ of service activities based on both of the claimed classifications.” *Id.*; *see id.* at 8–21.

As for item (i) (prioritization), Patent Owner argues “Rao teaches that by deprioritizing a packet . . . , that packet is *placed into a queue* of a certain

priority, and *that packet will be transmitted* [i.e., it will not be selectively denied or “temporarily” denied].” Prelim. Resp. 9 (citing Ex. 2001 ¶¶ 39–42) (emphases added); *see, e.g., id.* at 9–10 (discussing Rao’s Figure 5B, which shows Step 570 of “Indicating a priority for network packets based on application” and Step 575 of “Communicating network packets according to determined priority”), 11 (arguing “assigning a packet a low priority does not constitute a selective **denial** of that packet as the Petition suggests” (citing Ex. 2001 ¶ 42)), 11–12 (arguing that the skilled artisan would have understood that “mere ‘delay’ in actually transmitting a packet does not **deny** that packet, because under that logic, **all** packets would be denied because there is delay in any real-world system” (citing Ex. 2001 ¶¶ 43–44)); Ex. 1001, 62:23–25 (Challenged Patent distinguishing between “delaying” and “denying” by discussing a “mechanism for allowing, *denying, delaying*, and/or otherwise controlling network access” (emphases added)); Ex. 2001 ¶¶ 39–48.

Patent Owner argues “[t]he fact that queuing or delaying a packet does not constitute **denial** of that packet is confirmed even *by the Petition itself*,” where Petitioner contends that the skilled artisan would have understood that “packets queued and transmitted are ‘**allowed**.’” Prelim. Resp. 13 (quoting Pet. 28–29); *see id.* (“[The skilled artisan] would understand that so long as a packet is transmitted, that packet has been ‘allowed’ by the system and has not been ‘denied.’ There may be delay before a packet is ultimately transmitted, but that delay does not constitute a denial.” (citing Ex. 2001 ¶¶ 46–47)). Patent Owner submits that “Rao’s prioritization decisions (in which packets are ultimately transmitted) cannot

constitute a decision regarding selective allowance/denial as claimed.” *Id.* (citing Ex. 2001 ¶ 48).

As for item (ii) (discarded/dropped packets), Patent Owner argues (a) Rao’s teaching of “discarding” certain packets occurs in the context of a *network disruption*; (b) limitations 1.5 and 1.6 require selectively allowing or denying Internet service activities of a device based, in part, on a classification of the type of network to which the device “*currently connects*”; and (c) “Rao is clear that *during a network disruption*, the device *is not connected* to the relevant network.” Prelim. Resp. 14–15 (emphasis altered). Patent Owner argues:

[I]t would be ***impossible*** for Rao’s selective discarding of packets during a network disruption to be “based on the classifications” including a classification of “a wireless network to which the device *currently connects*”—even in combination with a reference such as Montemurro that allegedly takes into account network type in performing selective allowance/denial decisions—because during a network disruption there ***is no*** wireless network to which the device currently connects that could even potentially be taken into account in the selective allowance/denial decision. Ex. 2001, ¶ 54. The Petition’s reliance on alleged allowance/denial during network disruption (i.e., when there is no connection over which data can be sent) is contrary to the invention of the ’613 patent, which makes its selective allowance/denial decisions during an ***active*** wireless network connection (i.e., when data can actually be transmitted across the wireless network).

Id. at 15–16.

As for Petitioner’s cited disclosure in Rao of “dropping” packets, Patent Owner argues the skilled artisan would have understood such a disclosure “to relate to discarding ‘unwanted’ packets based on three distinct categories of information—the ‘content’ of the packet, the packet’s

‘protocols,’ and the packet’s ‘destination address[,],’” and notably, “[n]one of these are based in any part on whether an application is running in the foreground (as limitation [1.6] would require).” Prelim. Resp. 17–18 (citing Ex. 2001 ¶¶ 58–62); *see id.* at 18–20. Patent Owner argues “[w]hile Rao *does* teach that packets generated by background applications may be given lower priority than packets generated by foreground applications . . . , this is in the context of assigning foreground packets a higher queuing priority than background packets,” but “Rao never suggests ***dropping*** or ***discarding*** packets of an application based on a determination that the application is running in the background outside the context of ‘network disruption’ (where no current network connection exists).” *Id.* at 19. Patent Owner adds, in the context of “network congestion,” Rao teaches that “‘higher priority’ packets may be discarded over lower-priority packets,” which shows that such discarding of packets is performed independently of Rao’s prioritization policy, and thus Rao’s packet discarding in this context is not based on any foreground or background classification as required by limitations 1.5.2 and 1.6. *Id.* at 20–21.

(2) *Freund*

As for Freund, Patent Owner argues, in sum, that Freund does not cure Rao’s deficiencies, because the background/foreground teachings of Rao and Freund have inconsistent approaches to favoring foreground or background activity. *See* Prelim. Resp. 21–28.

In particular, Patent Owner submits:

Rao does not disclose a device selectively allowing / denying activity based in any part on whether an application is classified as in the foreground in any manner that could be modified to meet the remainder of the claim requirements (e.g., that the

selective allowance / denial occurs based on [sic] part on a classification of a wireless network type to which the device *currently* connects).

Prelim. Resp. 22; Ex. 2001 ¶ 67. Patent Owner argues Petitioner relies on Freund to “cure this deficiency,” but the “Petition fails to explain *why* [the skilled artisan] seeking to implement a Rao-based system would look to Freund’s teachings of foreground/background classifications designed to limit an employee’s ‘counterproductive Web browsing.’” Prelim. Resp. 22. According to Patent Owner and its expert, Mr. de la Iglesia, the skilled artisan “would not have been motivated to do so, because directly contrary to Rao which suggests *prioritizing* foreground activity over background activity, the relevant teachings of Freund *restrict* foreground activity relative to background activity.” *Id.* (citing Ex. 2001 ¶¶ 67–79); *see* Ex. 2001 ¶¶ 69 (“Rao favors foreground activity, and Freund favors background activity”), 70 (“In contrast [to Rao], Freund teaches the opposite—that foreground activity should be *disfavored* relative to background activity.”); Prelim. Resp. 23–25. Patent Owner argues the “Petition does not explain why [the skilled artisan] would have been motivated to combine these two references’ treatment of foreground/background classifications, given their opposing treatment of foreground and background activity.” *Id.* at 25; *see id.* at 25–28 (Patent Owner explaining why “none of the Petition’s motivations would have justified combining Rao’s and Freund’s *contradictory* teachings regarding treatment of foreground activity.” (citing Ex. 2001 ¶¶ 74–79)).

In short, according to Patent Owner’s expert’s persuasive testimony, “if [the skilled artisan] were looking for ways to supplement Rao’s treatment of foreground activity, they would not have looked to teachings that

explicitly disfavor foreground activities, contrary to Rao’s teachings.”

Ex. 2001 ¶ 79 (cited at Prelim. Resp. 28).

(3) Analysis

We have considered Petitioner’s arguments and cited evidence concerning whether the combination of Rao, Montemurro, and Freund would have taught or suggested to the skilled artisan the features of limitations 1.5 and 1.6, *taken together*, and do not find them sufficiently persuasive on the record before us. Rather, we find Patent Owner’s arguments and cited evidence sufficiently persuasive to defeat institution in this case, for the same reasons and evidence proffered by Patent Owner as outlined above.

Put simply, although Rao, Montemurro, and Freund may individually recite various nuggets of features that resonate with features recited in limitations 1.5 and 1.6 (e.g., selectively allowing or denying Internet service activities, applications operating in foregrounds versus backgrounds, and wireless devices operating on multiple types of networks), we find Petitioner insufficiently evidences how the combined teachings of these references would have taught or suggested to the skilled artisan the configuration of features *as a whole* in limitations 1.5 and 1.6 (specifically, selectively allowing or denying a wireless device’s Internet service activity corresponding to an application based on *both* of (1) a classification of a wireless network to which the device *is currently connected*, and (2) a classification of whether the application *is interacting with the user in the device interface foreground*).

Accordingly, for the reasons expressed above and based on the record before us, we determine that Petitioner has not established a reasonable

likelihood that it would prevail in showing that independent claim 1 is unpatentable as obvious over the combination of Rao, Montemurro, and Freund.

5. Dependent Claims 2–14, 16, and 18–23

Claims 2–14, 16, and 18–23 depend, directly or indirectly, from independent claim 1. Ex. 1001, 106:26–108:37. Based on the record before us, we determine that Petitioner’s analysis for claims 2–14, 16, and 18–23 does not remedy the deficiencies identified above with respect to independent claim 1. *See* Pet. 33–57. Thus, for the same reasons discussed in connection with the challenge to claim 1, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that any of claims 2–14, 16, and 18–23 is unpatentable as obvious over the combination of Rao, Montemurro, and Freund.

E. Alleged Obviousness of Claims 15, 17, and 24 over the Combination of Rao, Montemurro, Freund, and Araujo

Petitioner contends dependent claims 15, 17, and 24 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Rao (Ex. 1004), Montemurro (Ex. 1005), Freund (Ex. 1007), and Araujo (Ex. 1006). Pet. 3–10, 57–65. Patent Owner opposes Petitioner’s contentions based on its same arguments for independent claim 1. *See* Prelim. Resp. 6–28. Based on the record before us, we determine that Petitioner’s analysis for claims 15, 17, and 24 does not remedy the deficiencies identified above with respect to independent claim 1. *See* Pet. 57–65. Thus, for the same reasons discussed in connection with the challenge to claim 1, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that any of claims 15,

17, and 24 is unpatentable as obvious over the combination of Rao, Montemurro, Freund, and Araujo.

IV. DISCRETIONARY DENIAL UNDER 35 U.S.C. § 314(a) and § 325(d)

Because we deny institution upon consideration of the merits of Petitioner's challenges, Patent Owner's arguments that we should exercise our discretion under 35 U.S.C. §§ 314(a) and 325(d) to deny institution are moot. *See* Pet. 65–67; Prelim. Resp. 28–42; Prelim. Reply 1–2; Prelim. Sur-reply 1–2.

V. CONCLUSION

Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to any of claims 1–24 of the '613 patent under any of its proffered challenges (i.e., Grounds 1 and 2).

VI. ORDER

For the reasons given, it is hereby

ORDERED that the Petition is *denied*, and an *inter partes* review of U.S. Patent No. 9,215,613 B2 is not instituted.

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