

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENOVO (UNITED STATES) INC.
and MOTOROLA MOBILITY LLC,
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

IPR2024-01180
Patent 9,198,076 B2

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

HOWARD, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background and Summary

Lenovo (United States) Inc. and Motorola Mobility LLC filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–16 (“the challenged claims”) of U.S. Patent No 9,198,076 B2 (Ex. 1001, “the ’076 patent”). Pet. 1. Headwater Research LLC (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”).

We have authority, acting on the designation of the Director, to determine whether to institute an *inter partes* review. 35 U.S.C. § 314 (2024); 37 C.F.R. § 42.4(a) (2024). *Inter partes* review may not be instituted unless “the information presented in the petition filed under [35 U.S.C.] section 311 and any response filed under [35 U.S.C.] section 313 shows that 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). “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).

For the reasons set forth below, upon considering the briefing and the evidence of record, we determine that the information presented in the Petition does not establish a reasonable likelihood that Petitioner will prevail with respect to at least one of the challenged claims. Accordingly, we do not institute *inter partes* review.

B. Real Parties in Interest

Petitioner identifies itself as the real party in interest. Pet. 71.

Patent Owner identifies itself as the real party in interest. Paper 4, 1 (Patent Owner’s Mandatory Notices).

C. Related Matters

The parties identify the following district court proceeding as a related matter: *Headwater Research LLC v. Motorola Mobility LLC*, No. 4:23-cv-04496-JST (N.D. Cal.). Pet. 71; Paper 4, 1.

Petitioner also identifies an *inter partes* review petition (IPR2024-01181) filed for U.S. Patent No. 10,749,700 B2. Pet. 71.

D. The ’076 Patent

The ’076 patent is titled “Wireless End-User Device with Power-Control-State-Based Wireless Network Access Policy for Background Applications.” Ex. 1001, code (54). The invention is directed to 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”). *Id.* at 1:23–31.

Figure 14 is reproduced below.

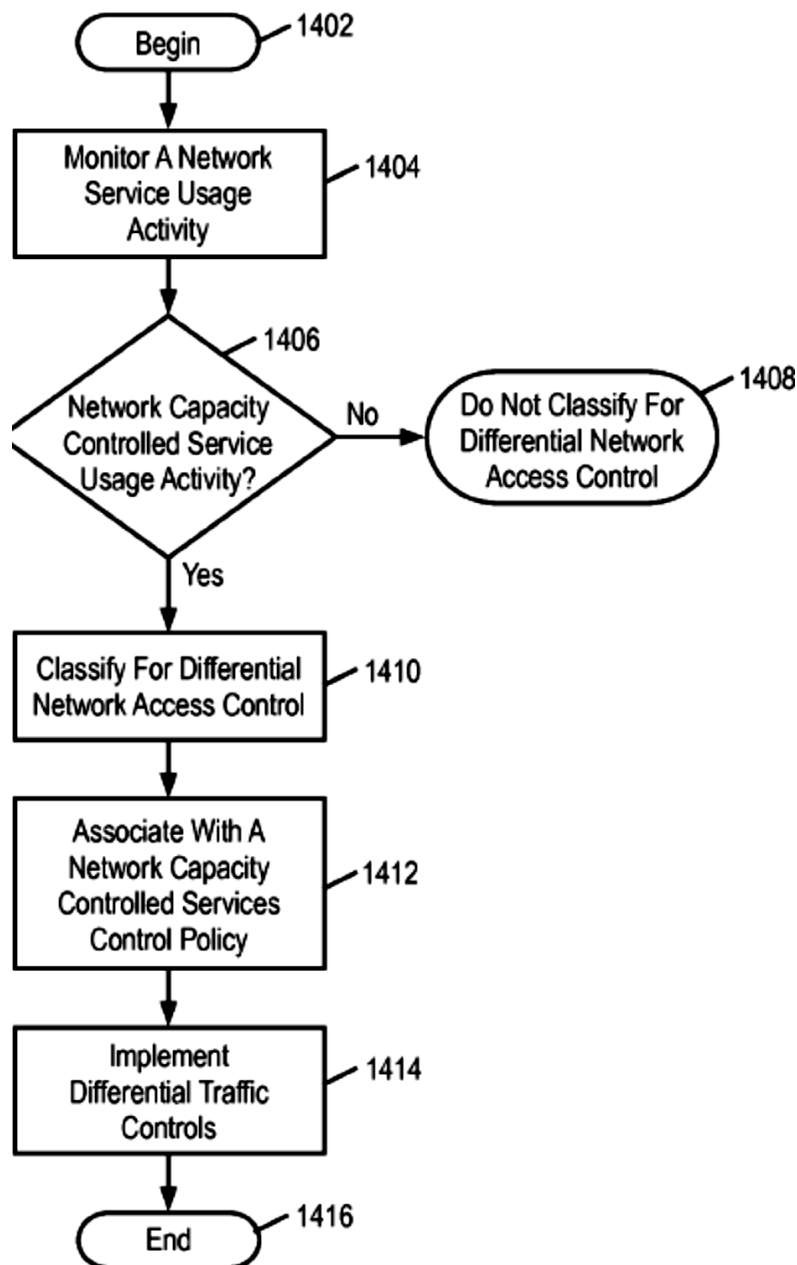


Figure 14 “illustrates a flow diagram for device assisted services (DAS) for protecting network capacity.” Ex. 1001, 2:19–21.

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 62:66–63:9. 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 is reproduced below.

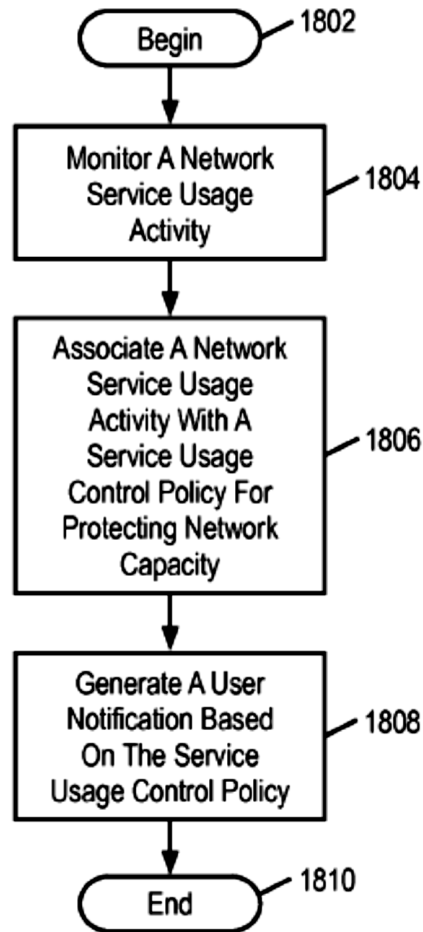


Figure 18 “illustrates another flow diagram for device assisted services (DAS) for protecting network capacity.” Ex. 1001, 2:31–32. Step 1802 begins the process. *Id.* at 64:28. Step 1804 monitors the network service usage activities of a wireless network device. *Id.* at 64:28–30. Step 1806 associates 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.

E. Illustrative Claim

Claim 1 of the '076 patent, the only independent claim, is reproduced below.

1. [1.pre] A wireless end-user device, comprising:
 - [1(a)] 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 at least one WWAN; and
 - [1(b)] one or more processors [1(c)] configured to, for a time when data communication for Internet service activities is provided by the WWAN modem and the at least one WWAN,
 - classify whether a first end-user application associated with an Internet access request, and capable of both interacting with a user in a user interface foreground of the device, and
 - at least some Internet service activities when not interacting with a user in the device user interface foreground,
 - is interacting with the user in the device user interface foreground, and
 - [1(d)(1)] allow or disallow the Internet access request based on the classification as to whether the first end-user application is interacting with the user and based on a power control state, [1(d)(2)] such that
 - when the power control state is a first power control state and the first end-user application is classified as not interacting with the user, the Internet access request is disallowed, and
 - [1(d)(3)] when the power control state is at least one other power control state, the Internet access request is allowed.

Ex. 1001, 105:50–106:12; Pet. 18–32 (identification of claim limitations).

F. Prior Art and Asserted Grounds

Petitioner argues that claims 1–16 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)/Basis
1, 2, 5, 7–16	103(a)	Rao, ² Araujo ³
3	103(a)	Rao, Araujo, Singh ⁴
4	103(a)	Rao, Araujo, Freund ⁵
6	103(a)	Rao, Araujo, Aleksic ⁶
16	103(a)	Rao, Araujo, Montemurro ⁷

Petitioner also relies on the testimony of Harry Bims, Ph.D. (Ex. 1003).

II. ANALYSIS

A. Legal Standards

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under 35 U.S.C. § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’076 patent was filed before March 16, 2013, we apply the pre-AIA version of the statutory basis for unpatentability. *See* Ex. 1001, code (22).

² US 2006/0039354 A1, published Feb. 23, 2006 (Ex. 1005).

³ US 2009/0217065 A1, filed Feb. 26, 2008, published Aug. 27, 2009 (Ex. 1006).

⁴ U.S. 8,381,127 B2, filed Feb. 2, 2006, issued Feb. 19, 2013 (Ex. 1017).

⁵ U.S. 5,987,611, issued Nov. 16, 1999 (Ex. 1010).

⁶ US 2008/0057894 A1, published Mar. 6, 2008 (Ex. 1014).

⁷ US 2009/0207817 A1, filed Feb. 15, 2008, published Aug. 20, 2009 (Ex. 1007).

art,” (3) the “differences between the prior art and the claims at issue,” and (4) if in evidence, “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.” *Id.* at 17–18. “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the U.S. Court of Appeals for the Federal Circuit has repeatedly emphasized that “it is error to reach a conclusion of obviousness until all those factors are considered,” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). Because Patent Owner does not address objective evidence of non-obviousness, we focus solely on the first three *Graham* factors.

B. Level of Ordinary Skill in the Art

The level of ordinary skill in the pertinent art at the time of the invention is a factor in how we construe patent claims. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). It is also one of the factors we consider when determining whether a patent claim would have been obvious over the prior art. *See Graham*, 383 U.S. at 17–18.

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696–97 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). “Not all such factors may be present in every

case, and one or more of these or other factors may predominate in a particular case.” *Id.*

Petitioner argues that a person having ordinary skill in the art “would have (1) held at least a bachelor’s degree in computer science, electrical engineering, or a related field, and (2) had three to five years of experience with networking, power consumption of networked computing devices, and/or wireless digital communications systems.” Pet. 4 (citing Ex. 1003 ¶¶ 24–26). Petitioner further argues that “[m]ore related education would compensate for fewer years of work experience (and vice versa).” *Id.* (citing Ex. 1003 at ¶¶ 24–26).

Patent Owner “does not challenge the Petition’s proposed definition.” Prelim. Resp. 8.

For purposes of this Decision, we adopt Petitioner’s formulation of a person having ordinary skill in the art, which is not disputed and consistent with the invention claimed in the ’076 patent.

C. Claim Construction

We apply the same claim construction standard used in the federal courts, in other words, the claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b), which is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under the *Phillips* standard, the “words of a claim ‘are generally given their ordinary and customary meaning,’” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312–13.

Petitioner argues that “no terms need to be expressly construed.”
Pet. 4.

Patent Owner argues that the term “disallow[]” should be given the same construction the parties agreed upon during the district court proceeding. Prelim. Resp. 9.

For the purposes of this Decision, we need not expressly construe any claim terms. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Obviousness over Rao and Araujo

Petitioner argues that claims 1, 2, 5, and 7–16 would have been obvious over Rao and Araujo. Pet. 6–51. Based on the current record, we are not sufficiently persuaded that Petitioner has established a reasonable likelihood of prevailing on this asserted obviousness ground with respect to those claims.

1. Overview of Rao

Rao is titled “Systems and Methods for Client-Side Application-Aware Prioritization of Network Communications.” Ex. 1005, code (54). Rao’s invention “generally relates to optimizing peer-to-peer network communications, and in particular, to techniques for application-aware prioritizations of network communications on a client.”
Id. ¶ 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. 1005, ¶ 3. “For example, . . . , although an application is running in the foreground and currently in active use by the user, a network packet [earlier] 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.*

Figure 1C is reproduced below.

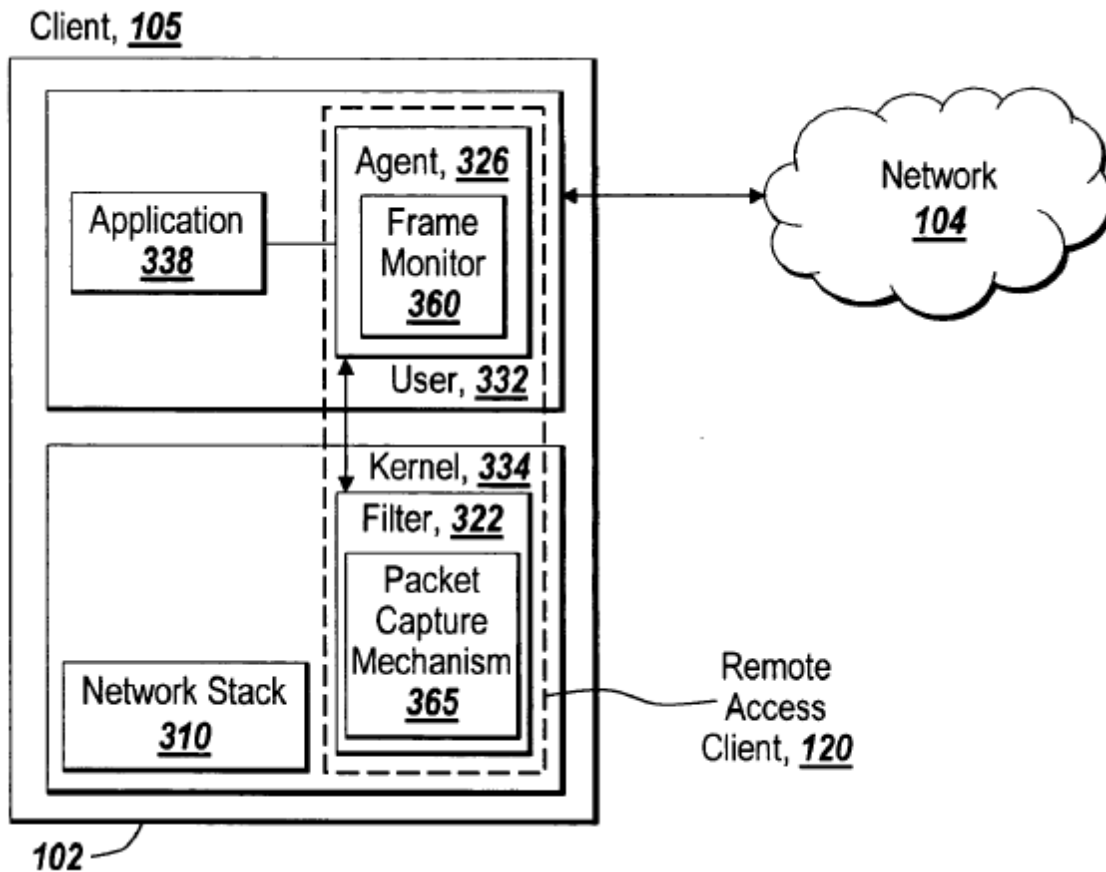


Figure 1C illustrates “a block diagram . . . of a remote access client . . . for network communications.” Ex. 1005 ¶ 62. Figure 1C also illustrates a computing device 102 operating as client 105 via network 104 and including user space 332 and kernel space 334. *Id.* ¶ 99. User space 332 includes application 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. 1005, ¶ 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.

Figure 5A is reproduced below.

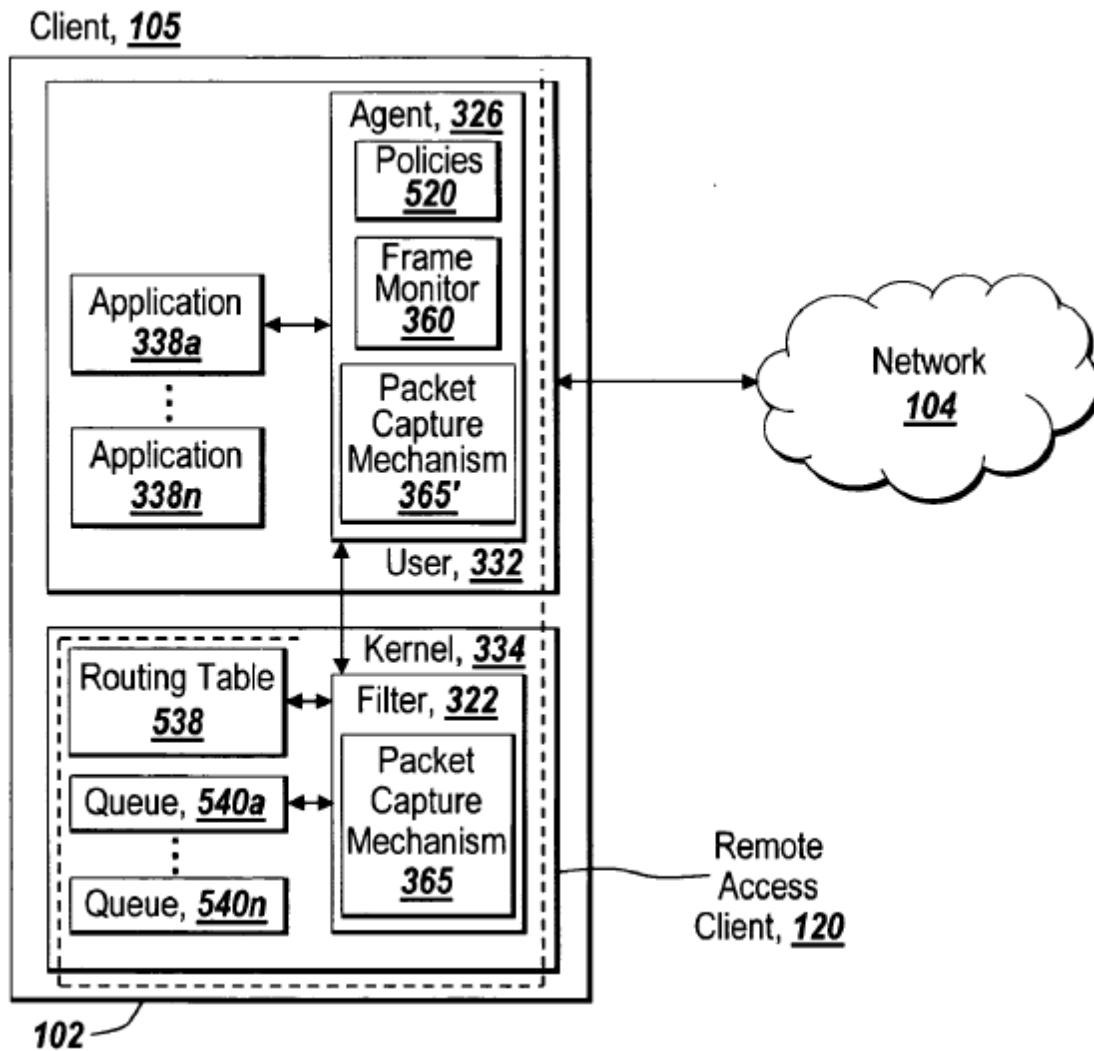


Figure 5A illustrates “block diagram depicting an environment of a client for providing client-side application-aware prioritization techniques.” Ex. 1005, ¶ 70. Figure 5A shows client computing device 102, 105 similar, but not identical to, the one shown in Figure 1C. *Compare* Fig. 5A *with* Fig. 1C.

Unlike in the Figure 1C embodiment, RAC 120 of the kernel space 334 includes queues 540a–540n that queue and prioritize network packets intercepted by PCM 365. *Id.* ¶ 180. Queues 540a–540n are associated with respective applications 338a–338n of the 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 1C embodiment, RAC 120 of user space 332 includes policies 520 specifying client-side prioritizations of network packets generated by the applications 338a–338n. Ex. 1005, ¶ 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.*

Figure 5B is reproduced below.

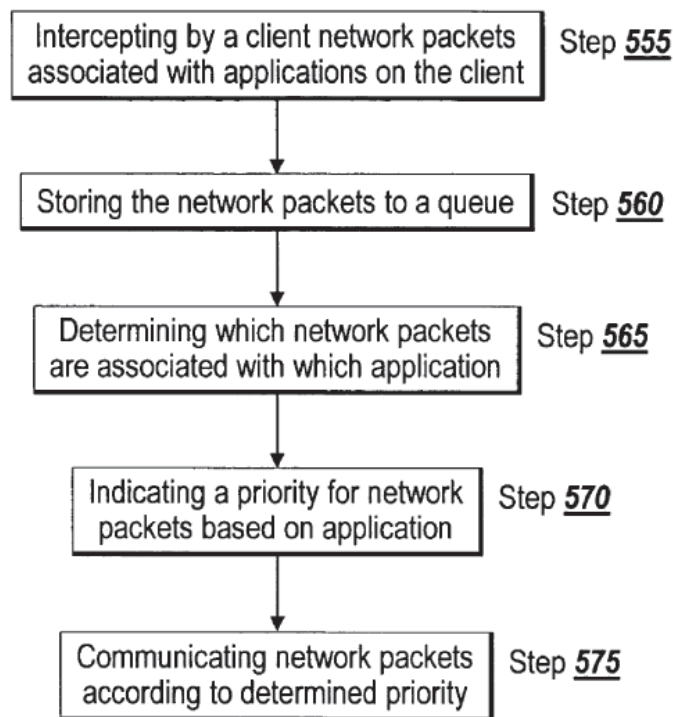


Figure 5B illustrates “a flow diagram depicting . . . [the] client-side application-aware prioritization” (Ex. 1005 ¶ 71) of the Figure 1A and Figure 5A embodiments (*id.* ¶ 184). Step 555 intercepts a network packet generated by one of applications 338a–338n. *Id.* Step 560 stores the intercepted network 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.*

2. Overview of Araujo

Araujo is directed to the management of a machine’s power by using a power-management policy. Ex. 1006, code (57). When a program “makes a request that involves use of one of the machine’s power-consuming devices, the policy may take into account factors such as the program’s status” indicating “the program’s relative level of justification to consume power.”

Id. For example, “some programs may have a ‘VIP’ status that allows them to consume power in situations where other programs would not be permitted to consume power.” *Id.* ¶ 27. Araujo’s system includes a power manager 110 that controls the respective power states of devices and “may cause devices to be turned off, or into a lower power state, based on factors such as timers, the amount of battery power remaining, or any other factor.” *Id.* ¶ 22. Such factors are evaluated by Araujo’s power management runtime 120 that “may implement policies that determine when, and under what circumstances”, power manager 110 is to turn devices 104–108 on or off, or is to place those devices in a different power state.” *Id.*

In addition, “[a] component may intercept a request to use a device before the request reaches the driver, and may deflect requests that, if carried out, are not consistent with [the] power usage policy.” Ex. 1006, code (57). This may be carried out using “[r]equest deflector component 602” interposed “between program 112 and driver 116.” *Id.* ¶ 50. “When request deflector component 602 detects that a request . . . has been made, it interacts with power management runtime 120 to determine what the ambient policy (e.g., power use policy 266) says about whether the request may be carried out at the expense of power use.” *Id.* If the request may be carried out under the power policy, “request deflector component 602 passes the request along to driver 116;” otherwise request deflector component 602 “may permanently or temporarily deflect the request from reaching driver 116.” *Id.*

3. *Analysis of Claim 1, 2, 5, and 7–16*

a) *Petitioner’s Argument*

Limitation 1(d)(1) recites that the wireless end-user device is configured to “*allow or disallow the Internet access request based on the classification as to whether the first end-user application is interacting with the user and based on a power control state.*” Ex. 1001, 106:1–4 (emphasis added).

Petitioner argues that the combination of Rao and Araujo teaches limitation 1(d)(1). Pet. 13–18 (discussing reason to combine), 25–30 (discussing limitation 1(d)(1)). Specifically, Petitioner argues that a person having ordinary skill in the art “would have been motivated and found it obvious to augment the application-specific policies taught by Rao to consider not only whether the application is currently in the foreground of the device (‘is interacting with the user’), but also a power state of the device (‘a power control state’).” Pet. 25–26 (citing Ex. 1003 ¶ 79).⁸ According to Petitioner, in this combination, “Rao/Araujo’s remote access client would allow or disallow an application’s request for network access based both on (i) whether the application is currently in the device’s foreground (taught by Rao) and (ii) the device’s power state (taught by Araujo).” *Id.* (citing Ex. 1003 ¶ 79); *see also id.* at 15 (“In this example, Rao/Araujo’s remote access client would employ application-specific policies that specify whether to allow or block a request from an application based on a check of (i) whether the application is currently in the device’s foreground or the

⁸ Petitioner italicizes the names of the prior art references. Here and elsewhere, the italics have been omitted.

background (taught by Rao) and (ii) the device’s power state (taught by Araujo).” (citing Ex. 1003 ¶ 65)).

The foundation of Petitioner’s argument is that Rao, like Araujo, will allow or block network packets based on certain conditions, such as whether the application is in the foreground or background:

Araujo would have motivated a POSITA to augment Rao’s policies. ([Ex. 1003] ¶ 63.) In particular, a POSITA would have been motivated *to augment Rao’s policies to specify that network packets from certain applications should be allowed or blocked based not only on whether the application is currently in the foreground or the background but also on a device’s power state.* (*Id.*)

. . . . Rao’s policies, when augmented to consider the device’s power state, *would specify whether an application request is to be allowed or blocked based both on whether the application is currently in the device’s foreground or background (taught by Rao, and similar to Araujo’s VIP/non-VIP status) and the device’s power state.* (Ex. 1003 ¶ 64)

Pet. 14–15 (emphases added). That is, Petitioner argues that instead of Rao simply allowing or disallowing network traffic based on whether the application is currently in the foreground or background, when combined with Araujo, the combination will also consider the device’s power state. According to Petitioner, this is achieved using Rao’s filter 322: “Araujo’s request deflector functionality would be implemented in connection with or as part of the filter 322 of Rao’s remote access client, which—like Araujo’s request deflector—applies application-specific policies to determine how to handle applications’ network access attempts.” *Id.* at 15 (citing Ex. 1003 ¶ 65; Ex. 1005 ¶¶ 191–193; Ex. 1006 ¶ 24).

However, Petitioner does not sufficiently explain where Rao teaches “allow[ing] or disallow[ing]” as recited in claim 1. *See* Pet. 13–18, 25–30.

To the extent Petitioner and Dr. Bims cite to Rao, they reference paragraphs 191 through 193, which discuss how Rao’s filter 322 is used to implement prioritization. *See* Pet. 15; Ex. 1003 ¶ 65. More specifically, those paragraphs recite using prioritization to place the network packets in different queues based on their priority. *See* Ex. 1005 ¶¶ 191–193. We see nothing in Rao that teaches or suggest that the network packets would be disallowed, as opposed to simply delayed, based on priority. *Id.* And, as Patent Owner argues, this finding is consistent with factual findings made by a different panel considering the teachings of Rao in an *inter partes* review of a related patent. *See* Prelim. Resp. 16–18 (citing *Samsung Elecs. Co v. Headwater Research LLC*, IPR2023-01361, Paper 8 (PTAB Mar. 29, 2024) (Decision Denying Institution)).

Even if one reads the Petition as arguing that a person having ordinary skill would have modified Rao to include Araujo’s blocking—which we do not—we would not be sufficiently persuaded by that argument. Although Petitioner explains why a person having ordinary skill in the art would want to consider power usage along with whether the application is in the foreground or background, Petitioner does not explain why a person having ordinary skill in the art would have changed prioritization to blocking. *See* Pet. 13–18. Indeed, such a modification appears to be one that would render Rao “inoperable for its intended purpose.” *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

Accordingly, Petitioner has not shown a reasonable likelihood of prevailing on the challenge to independent claim 1 or dependent claims 2, 5, and 7–16, which depend from claim 1.

E. Remaining Grounds.

Petitioner also challenges the patentability of claim 3 based on Rao, Araujo, and Singh (Pet. at 52–55); claim 4 based on Rao, Araujo, and Freund (*id.* at 56–60); claim 6 based on Rao, Araujo, and Aleksic (*id.* at 61–64); and claim 16 based on Rao, Araujo, and Montemurro (*id.* at 64–68). Because those claims all depend from claim 1 and Petitioner does not rely on any of the additional references to overcome the deficiency noted in the preceding section, for the same reason discussed above for claim 1, Petitioner has not shown a reasonable likelihood of prevailing on the challenge to dependent claims 3, 4, 6, and 16.

III. CONCLUSION

For the foregoing reasons and on the present record, we determine that the information presented in the Petition does not demonstrate a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of any of the challenged claims of the '076 patent.

IV. ORDER

In consideration of the foregoing, it is hereby
ORDERED that the Petition is *denied*.

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