

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.,  
Petitioner,

v.

HEADWATER RESEARCH LLC,  
Patent Owner.

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IPR2023-01253  
Patent 9,143,976 B2

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Before ROBERT J. WEINSCHENK, GARTH D. BAER, and  
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BAER, *Administrative Patent Judge*.

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

## I. INTRODUCTION

### A. *Background and Summary*

Samsung Electronics Co., Ltd. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–29 (“challenged claims”) of U.S. Patent No 9,143,976 B2 (Ex. 1001, “the ’976 patent”). Headwater Research LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). With our authorization, Petitioner filed a Reply to Patent Owner’s Preliminary Response (Paper 7) and Patent Owner filed a Preliminary Sur-reply (Paper 8).

Under 35 U.S.C. § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon consideration of the Petition in view of the present record and for the reasons explained below, we determine that Petitioner has not shown a reasonable likelihood of prevailing with respect to at least one of the challenged claims. Accordingly, we do not institute an *inter partes* review on the grounds set forth in the Petition. *See* 37 C.F.R. § 42.108(a).

### B. *Related Proceedings*

The parties identify the following related matters: *Headwater Research LLC v. Samsung Electronics Co., Ltd.*, 2:22-cv-00422 (E.D. Tex.), and *Headwater Research LLC v. Samsung Electronics Co., Ltd.*, No. 2:22-cv-00467 (E.D. Tex.). Pet. 78; Paper 4, 2.

### C. *The ’976 Patent*

The ’976 patent is directed to services for protecting network capacity. Ex. 1001, code (54). The patent describes a system that “analyzes traffic from [a] network service consuming application,” and “categorize[s] the traffic” based on various criteria including “whether the particular

service usage activity is in foreground of user interaction or in the background of user interaction.” *Id.* at 100:59–60, 101:20–25. The system includes a “differential network access control engine that can restrict network access of a particular service usage activity when a condition is satisfied, such as when the service usage activity is a background activity.” *Id.* at 102:12–15.

*D. Illustrative Claim*

Claim 1 is the sole challenged independent claim. Claim 1 is reproduced below.

A wireless end-user device, comprising:

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;

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;

a device display;

one or more processors configured to

classify, for a first end-user application capable of interacting in the device display foreground with a user and capable of at least some Internet service activity when not interacting in the device display foreground with the user, whether or not the first end-user application, when running, is interacting in the device display foreground with the user,

for a time period when data for Internet service activities is communicated through a WWAN modem connection to the at least one WWAN, apply a first differential traffic control policy to Internet service activity on behalf of the first end-user application, such that Internet service activity on behalf of the first end-user application is disallowed when the one or more

processors classify the first end-user application as not interacting in the device display foreground with the user, and

indicate to the first end-user application, via an application program interface (API), one or more network access conditions based on the applied first differential traffic control policy, including

a first network access condition that indicates the unavailability to the first end-user application, when the first end-user application is classified as not interacting in the device display foreground with the user, of Internet data service that is available via the WWAN modem, and

a second network access condition that indicates the availability to the first end-user application, when the first end-user application is classified as interacting in the device display foreground with the user, of Internet data service that is available via the WWAN modem.

Ex. 1001, 105:50–106:27.

*E. Prior Art and Asserted Grounds*

Petitioner asserts the following grounds of unpatentability:

| <b>Claims Challenged</b>                  | <b>35 U.S.C. §<sup>1</sup></b> | <b>References/Basis</b>                 |
|-------------------------------------------|--------------------------------|-----------------------------------------|
| 1–4, 8–10, 13, 14, 16, 19, 20, 25, 27, 28 | 103                            | Rao, <sup>2</sup> Oestvall <sup>3</sup> |
| 5–7, 11, 17, 18, 23, 24, 26, 29           | 103                            | Rao, Oestvall, Montemurro <sup>4</sup>  |
| 12, 15, 21, 22                            | 103                            | Rao, Oestvall, Araujo <sup>5</sup>      |

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<sup>1</sup> The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), included revisions to 35 U.S.C. § 103 that became effective after the filing of the application that led to the challenged patent.

<sup>2</sup> US 2006/0039354 A1, Pub. Feb. 23, 2006 (Ex. 1005, “Rao”).

<sup>3</sup> US 2007/0038763 A1, Pub. Feb. 15, 2007 (Ex. 1006, “Oestvall”).

<sup>4</sup> US 2009/0207817 A1, Pub. Aug. 20 2009 (Ex. 1007, “Montemurro”).

<sup>5</sup> US 2009/0217065 A1, Pub. Aug. 27, 2009 (Ex. 1011, “Araujo”).

Petitioner also relies on the testimony of Dr. Kevin Butler (Ex. 1003).

## II. DISCUSSION

### *A. Claim Construction*

Neither party proposes an express construction for any claim terms. Pet. 2–3; Prelim. Resp. 8. We agree that no claim terms require express construction for purposes of this Decision.

### *B. Level of Ordinary Skill in the Art*

Petitioner contends a person of ordinary skill in the art at the time of the invention “would have had (1) at least a bachelor’s degree in computer science, computer electrical engineering, or a related field, and (2) at least two years of industry experience in services and application implementation in communication networks,” and that “[a]dditional graduate education could substitute for professional experience, and vice versa.” Ex. 1003 ¶ 17; *see* Pet. 11 n.3. Patent Owner does not challenge Petitioner’s definition at this stage of the proceeding. Prelim. Resp. 8. On this record, we agree with Petitioner’s definition.

### *C. Description of Primary Prior Art References*

#### *1. Rao (Ex. 1005)*

Rao is titled “Systems and Method for Client-Side Application-Aware Prioritization of Network Communications” and “is generally directed towards a remote access architecture for providing peer-to-peer communications and remote access connectivity.” Ex. 1005, codes (54), (57).

Rao’s Figure 1A, reproduced below, illustrates a system for deploying an exemplary remote access architecture. Ex. 1005 ¶ 86.

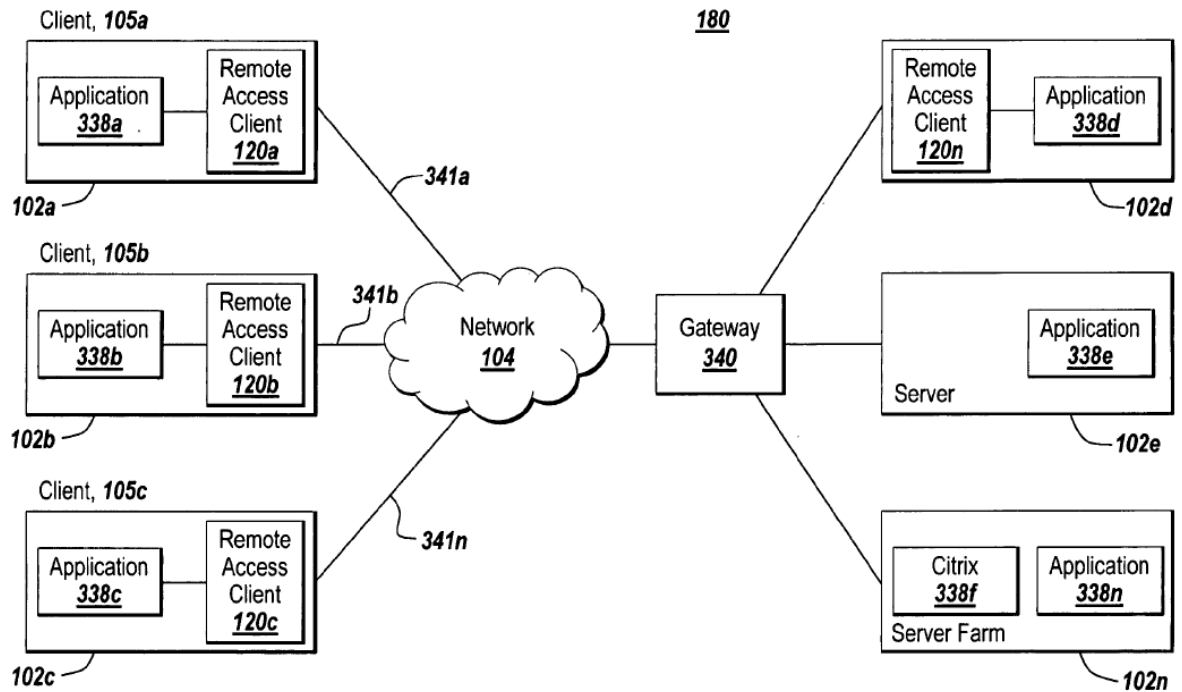


*Fig. 1A*

Figure 1A shows that environment 180 includes a number of computing devices 102a–102c, also referred to as clients 105a–105c, connected to network 104. *Id.* ¶ 86, Fig. 1A. Clients 105a–105c may communicate with server 102a, server farm 102e, or peer computing devices 102d via network 104 and gateway 340. *Id.*

Clients 105a–105c include respective remote access clients 120a–120c (Ex. 1005 ¶ 87, Fig. 1A), an example of which is shown in more detail in Figure 1C, reproduced below.

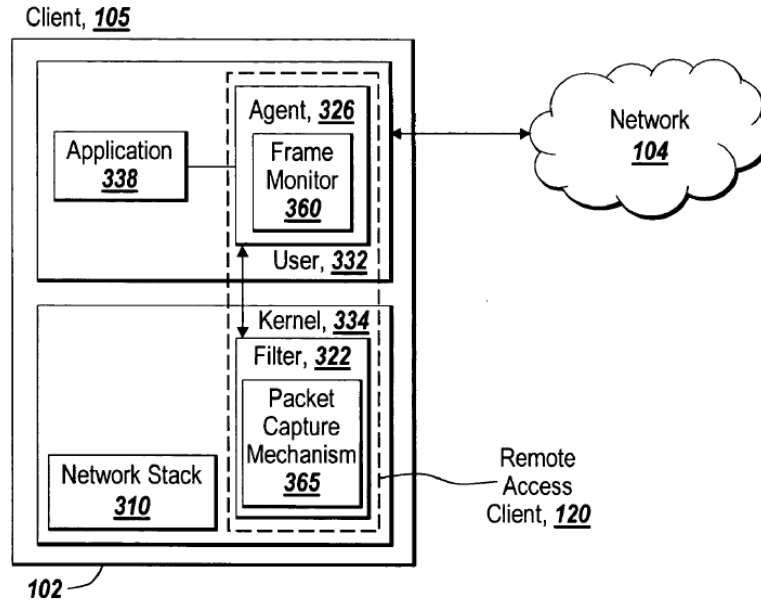


*Fig. 1C*

Figure 1C shows computing device 102, also referred to as client 105, as including remote access client 120 for routing network packets to network 104. *Id.* ¶ 99, Fig. 1C. Computing device 102 may also include network interface 118 (not shown in Figure 1C) for interfacing with “a Local Area Network (LAN), Wide Area Network (WAN) or the Internet through a variety of connections including . . . LAN or WAN links . . . wireless connections, or some combination of any or all of the above.” *Id.* ¶ 125. “[N]etwork interface 118 may comprise a . . . modem or any other device suitable for interfacing the computing device 102 to any type of network.” *Id.* “[R]emote access client 120 may be used to practice one or more of the optimization techniques” Rao describes, such as “optimizing any real-time data communications, such as VoIP, desktop sharing, or web conferences.” *Id.* ¶ 117.

Figure 5A of Rao shows a more detailed illustration of computing device 102, also referred to as client 105, for use in “client-side application-aware network communication prioritization techniques.” Ex. 1005 ¶ 179.

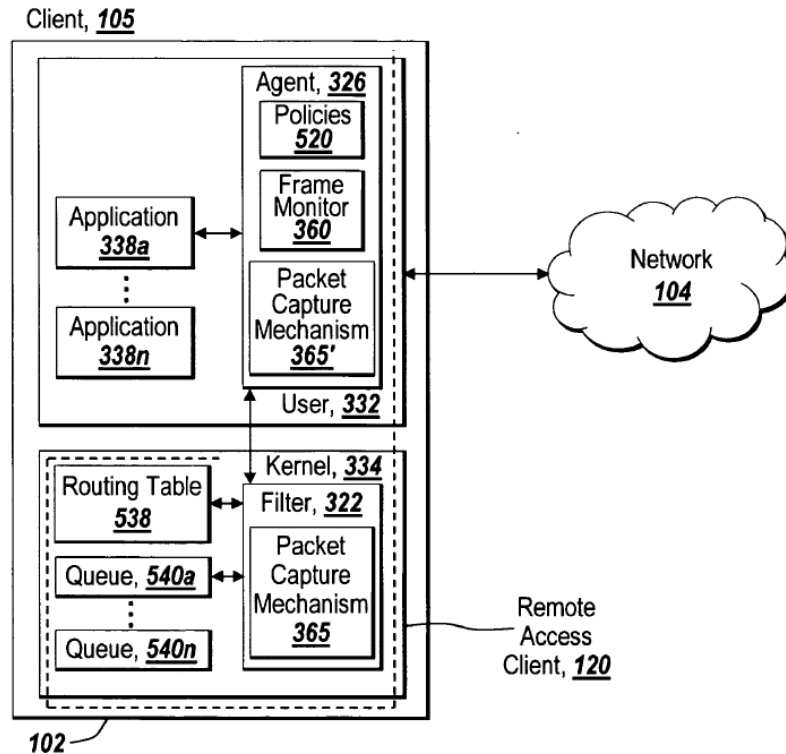


*Fig. 5A*

In particular, as shown in Figure 5A, “remote access client 120 may have one or more policies 520 for specifying client-side prioritization of network communications related to applications 338a-338n.” *Id.* ¶ 182, Fig. 5A. In an embodiment, “policies 520 may be specified in accordance to the type of one or more protocols used by the applications 338a-338n and/or the size of the payload of the network packet.” *Id.* In operation, client 105 may intercept network packets associated with an application 338a-338n and store the packets in one of queues 540a–540n, where a priority is determined for the packets based on the type and/or priority of the application with

which the packets are associated. *Id.* ¶ 184. “[A]ll network packets for a type of application 338*a*-338*n*, such as an email or voice application, or all network packets for a type of protocol used by the application 338*a*-338*n*, such as RPT or UDP, may be placed in a queue 540*a*-540*n* for prioritizing network[] packets for one or more applications.” *Id.* ¶ 192.

2. *Oestvall (Ex. 1006)*

Oestvall is titled “Method of Enabling a Multitasking Computing Device to Conserve Resources” and relates to preserving battery power in a computing device “by determining if an untrusted application is in the background or foreground and preventing an untrusted application that is in the background from running.” Ex. 1006, codes (54), (57). Oestvall observes that “[b]attery conservation in battery operated computing devices is very important, particularly in devices such as smartphones that consume high power levels by virtue of connecting to always-on GPRS or 3G cellular networks.” *Id.* ¶ 4. In a multi-tasking computer device, however, “without an explicit ‘close’ command, applications will continue to run even when not actually in active use; they will therefore continue to use some system resources, even when residing in the ‘background.’” *Id.* ¶ 6.

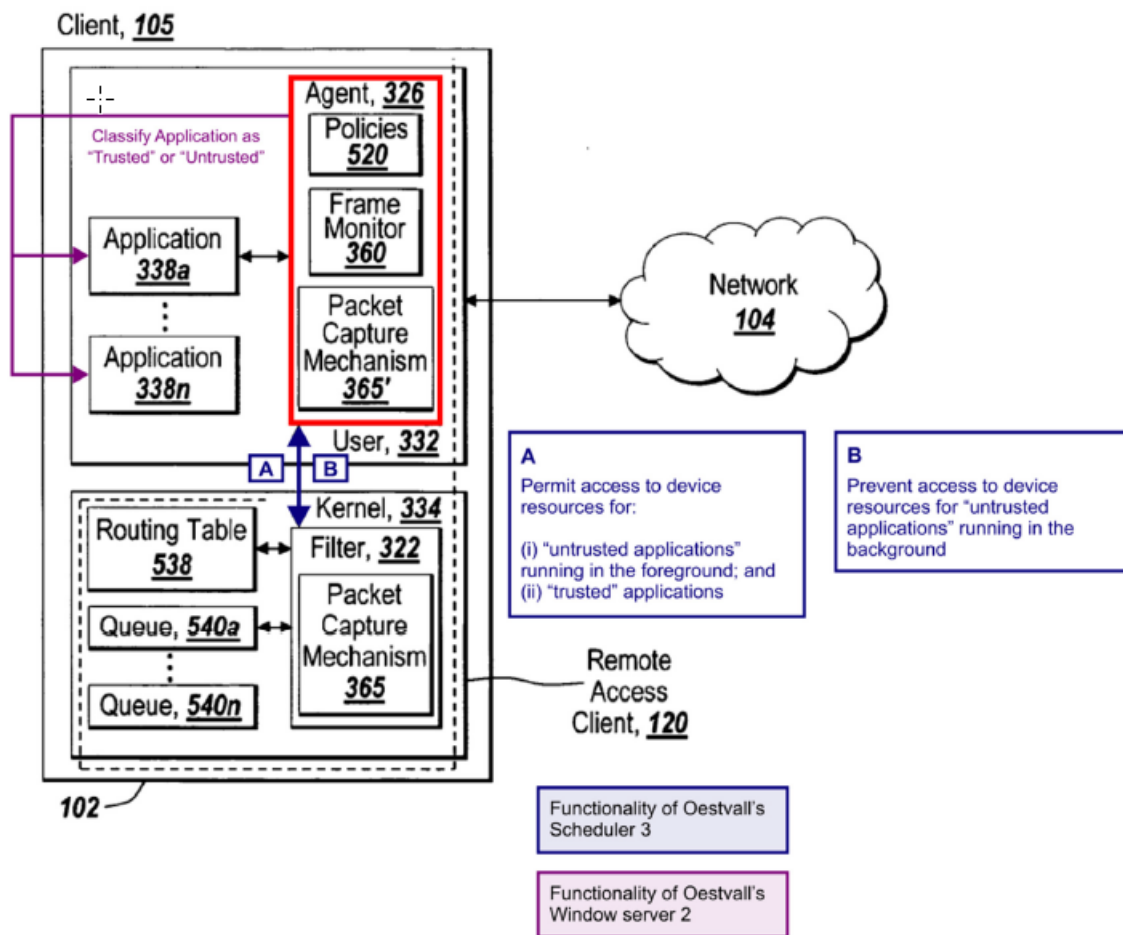
Accordingly, Oestvall describes “denying system resources and services to background applications that do not meet predefined ‘trust’ or certification criteria—i.e. criteria which define the level of trustworthiness of the application.” Ex. 1006 ¶ 10. As Oestvall notes, “untrusted” applications are “more likely to contain a wrong implementation of normal background behaviour(sic): hence, merely relying on an application to voluntarily cease running when notified that it is in the background is an inadequate strategy for untrusted applications.” *Id.* ¶ 14. Therefore, in Oestvall’s method, “when an untrusted application is running on the battery operated device and

another application should be in the foreground, the untrusted application is placed into the background and is also actively prevented from running.” *Id.* ¶ 21.

#### *D. Obviousness Analysis*

##### *1. Petitioner’s Proposed Prior-Art Combination*

In challenging claims 1–29, Petitioner relies primarily on Rao and Oestvall. *See* Pet. 4–74.<sup>6</sup> Petitioner’s proposed combination of Rao and Oestvall is reproduced below.



Rao-Oestvall

<sup>6</sup> Petitioner adds Montemurro or Araujo to address additional limitations in dependent claims 5–7, 11, 12, 15, 17, 18, 21–24, 26, and 29. *Id.* at 46–74.

*Id.* at 14. In the combination, Petitioner explains, “a POSITA would have improved [Rao’s] agent 326 (red) to incorporate functionality associated with Oestvall’s window server 2 (purple) and functionality associated with [Oestvall’s] scheduler 3 (blue).” *Id.* at 13. Petitioner explains that its combination “would have enabled an improved agent to classify [Rao’s] applications 338a-n (for which packet transmissions are prioritized) as ‘trusted’ or ‘untrusted’ applications,” and “would have also enabled [Rao’s] improved agent to prevent an untrusted application in the background from running or being given access to a service that consumes resources.” *Id.*

2. *“indicat[ing] to the first end-user application . . . network access conditions”*

The challenged claims require “one or more processors configured to . . . indicate to the first end-user application, via an application program interface (API), one or more network access conditions based on the applied first differential traffic control policy.” Ex. 1001, 105:60–106:14. Petitioner asserts several theories as to how its proposed combination accounts for this feature. *See* Pet. 26–29. For the reasons outlined below, we agree with Patent Owner that Petitioner has not shown the claimed indicating-network-access-conditions feature would be obvious over the asserted prior art. *See* Prelim Resp. 21–31.

a) *Oestvall*

Petitioner asserts Oestvall teaches the claimed indication to an application of network access conditions in two ways. First, Petitioner asserts, “in Oestvall, an applied policy specifies a condition that ‘prevents [an] untrusted application 4 from running,’” and that “[s]ince this condition impacts normal operation of the application, a POSITA would have understood and found it obvious that Rao-Oestvall provides an indication to

the application.” Pet. 26 (quoting Ex. 1006 ¶ 23). We disagree with this argument because Petitioner does not explain why simply impacting an application’s normal operations necessitates or even implies any indication to the application, much less the specific indication of network access conditions that the challenged claims require. Second, Petitioner asserts that Oestvall teaches this feature because “Oestvall . . . contemplates embodiments in which a policy decision is communicated to an application, since the application ‘maybe requested’ (but not prevented) to stop running if in background.” *Id.* at 27 (quoting Ex. 1006 ¶ 15). We disagree. As Patent Owner notes, the statements in Oestvall on which Petitioner relies “are expressly about *trusted* applications, whereas [Petitioner’s] theory for how network activity is ‘disallowed’ (as required by claim [1.7]) is all about Oestvall’s handling of *untrusted* applications.” Prelim. Resp. 27. Because Oestvall does not teach sending the asserted requests to disallowed untrusted applications, we agree with Patent Owner that Oestvall does not teach or suggest “indicat[ing] to the first end-user application . . . network access conditions” as the challenged claims require.

*b) Rao*

Petitioner asserts that Rao also teaches the claimed indication of network access conditions because Rao’s Figure 5A “shows a bi-directional arrow (red), indicating that, in some instances, agent 326 provides communications to applications 338a-n.” Pet. 26 (citing Ex. 1005, Fig. 5). We disagree with this argument because, as Patent Owner notes, Rao’s generic arrow indicates merely indicates bidirectional data communication between Rao’s agent and applications. Prelim. Resp. 23. Beyond generic data flow, however, the unlabeled arrow in Rao’s Figure 5 is not enough to

show that Rao’s applications are informed of network access conditions, as the disputed limitation requires.

Next, Petitioner asserts that Rao teaches the disputed indication feature because Rao’s “[a]gent 326 includes packet capture mechanism 365, which may use any hooking application programming interface (API) to intercept, hook, or otherwise **obtain inbound and/or outbound packets of the client 105, such as the network traffic associated with application 338.**” Pet. 26–27. We disagree that Rao’s packet-capture mechanism teaches the claimed notification to applications of network access conditions. As Patent Owner explains, Rao’s hooking application describes “processing network packets *outside* the applications,” but does not suggest sending indications to applications regarding network access conditions, as claim 1 requires. Prelim. Resp. 24.

Petitioner next asserts that the claimed indication would have been obvious because “Rao’s device can run the Java operating system” and a skilled artisan “would have understood and found obvious that the application would have received an indication, via the Java sockets API, of the network access condition.” Pet. 29. We disagree. Although Rao mentions Java as one in a long list of example operating systems (*see* Ex. 1005 ¶ 128 ), Petitioner’s argument is insufficient because it does not explain why using Java necessarily means applications will receive the specific indication claimed—one that notifies an application of network access conditions. Likewise, Petitioner offers no reason why one skilled in the art using Petitioner’s asserted combination of Rao and Oestvall would have been motivated to do so. *See id.* Absent such an explanation, Petitioner’s argument amounts to no more than asserting that Rao teaches using Java and that Java sockets were known. Petitioner’s argument lacks

the necessary rationale explaining how the specific disputed notification was known and why employing that notification would have been obvious to one skilled in the art. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (noting that “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does”).

*c) Araujo and Dive-Reclus*

Next, Petitioner asserts that a skilled artisan would have “found it obvious to implement policy evaluation in Rao-Oestvall using one of several well-known techniques that provide indications to applications relating to policy evaluation.” Pet. 27. Petitioner cites a separate reference, Araujo, that allegedly teaches notifying programs that requests will not be processed “if [a] power state change is not allowable under [a] policy.” *Id.* at 28 (quoting Ex. 1011 ¶¶ 38, 41). Petitioner’s argument regarding Araujo is insufficient for two reasons. First, the claim requires indicating “network access conditions,” not just generic “indications to applications relating to policy evaluation,” as Petitioner suggests. *Id.* at 27. In addition, Petitioner does not provide any rationale explaining why one skilled in the art would have been motivated to include the alleged notification from Araujo. *See* Pet. 27–28. Absent such a rationale, Petitioner’s obviousness argument is insufficient. *See KSR*, 550 U.S. at 418.

As for Dive-Reclus, Petitioner argues that “Oestvall incorporates by reference Dive-Reclus, which teaches using permissions to regulate API calls (granting, denying) made by applications in accessing a network.” Pet. 28 (internal citation omitted). With that, Petitioner concludes “a POSITA would have found it obvious that a permission decision for an API call by an application (granting, blocking) involves providing an indication

to the application regarding the permission decision.” *Id.* We agree with Patent Owner that Petitioner’s argument is insufficient. *See* Prelim. Resp. 29–31. Petitioner’s general assertion that Oestvall incorporates Dive-Reclus by reference is not enough because Petitioner offers no explanation as to whether or how the relevant missing feature from Oestvall (notification to an application of network access conditions) is incorporated in Petitioner’s proposed combination of Oestvall and Rao. *See* Pet. 28. Nor does Petition explain how or why a skilled artisan would have been motivated to include that feature from Dive-Reclus in its asserted combination. Instead, Petitioner offers only a conclusory assertion that doing so would have been obvious. *See id.* In these circumstances, we agree with Patent Owner that Petitioner’s assertions are insufficient to show obviousness.

Given the deficiencies outlined above, Petitioner has not shown that the prior art teaches or suggests “indicat[ing] to the first end-user application . . . network access conditions” as the challenged acclaims require. Thus, Petitioner has not shown a reasonable likelihood of prevailing with respect to at least one of the challenged claims.

### III. CONCLUSION

After considering the evidence and arguments presented in the current record, we determine that Petitioner has demonstrated a reasonable likelihood of success in proving that at least one of the challenged claims of the ’976 patent is unpatentable. We therefore do not institute trial on any challenged claims or grounds raised in the Petition.

#### IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), no *inter partes* review is instituted for 1–29 of the '976 patent on the unpatentability grounds asserted in the Petition.

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