

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

IPR2023-01336
Patent 9,137,701

PATENT OWNER'S RESPONSE TO THE PETITION

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Cases

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PATENT OWNER'S EXHIBIT LIST

No.	Description
Ex. 2001	International Publication No. WO 2006/012610 to Rao et al. ("Rao-2")
Ex. 2002	Redline of the text of Rao (Ex. 1007) and Rao-2 (Ex. 2003)
Ex. 2003	U.S. Patent No. 8,825,109 to Montemurro et al. ("Montemurro Patent")
Ex. 2004	Redline of the text of Montemurro (Ex. 1009) and the Montemurro Patent (Ex. 2005)
Ex. 2005	U.S. Patent Application Publication No. 2007/0073899 to Judge et al. ("Judge")
Ex. 2006	U.S. Patent Application Publication No. 2004/0133668 to Nicholas ("Nicholas")
Ex. 2007	Your Cell Phone Company's Dirty Little Secret (Feb. 10, 2010) (available at https://money.cnn.com/2010/02/10/technology/cell_phone_bill/index.htm)
Ex. 2008	Declaration of James Pickens in Support of Motion for <i>Pro Hac Vice</i> Admission
Ex. 2009	Declaration of Dr. Zygmunt J. Haas in Support of Patent Owner's Response
Ex. 2010	<i>Curriculum vitae</i> of Dr. Zygmunt J. Haas
Ex. 2011	June 14, 2024 deposition transcript of Patrick McDaniel, Ph.D.

I. INTRODUCTION

All challenged claims require processors configured to “determine, for a first end-user application capable of running in a background state..., whether the application is running in a background state or as a foreground application, and control... application access for Internet service activities..., wherein the access is selectively blocked based on a determination that the first end-user application is running in a background state.” Ex. 1001, claim 1.

The Petition relies on a combination of two references (“Rao” and “Oestvall”) in an attempt to meet the requirements of claim 1. Rao alone does not meet the claim 1 requirements because Rao does not ever “selectively block [access to an application] based on a determination that [the] application is running in a background state”; instead, Rao at most teaches *prioritizing* applications’ access to the modem based on priorities influenced by background status, not *blocking* such access as the claim requires. And the Petition does not even allege any motivation to deviate from Rao’s teachings in this regard. *See, e.g.*, Pet. 28 (alleging in conclusory fashion only that a “POSITA would have understood and found obvious configuring Rao’s packets to prioritize the captured packets by... effectively deprioritizing those captured packets *entirely*,” but providing no alleged motivation to do so).¹

¹ All emphases added unless otherwise specified.

The Petition’s combination of Rao with Oestvall also does not show claim 1 to be obvious. For example, the Petition’s combination “prevent[ing] an untrusted application in the background from running or being given access to a service that consumes resources.” Pet. 13 (also providing an annotated diagram showing that the combined system would “[p]revent access to device resources for ‘untrusted applications’ running in the background”). But in a system designed to entirely prevent untrusted applications from running in the background, there is no *determination* that those applications are running in the background (because they never *are* running in the background—they are instead *prevented* from doing so). Furthermore, the Petition does not explain how any system based on a combination involving Oestvall’s prevention of untrusted applications from running in the background would control application access “via an application program interface (API)” as claim 1 further requires.

Accordingly, all challenged claims should be found not unpatentable.

II. OVERVIEW OF THE ’701 PATENT

At a high level, the ’701 Patent is generally directed to using a differential traffic control policy to selectively block access by an application to a WWAN modem while data is being communicated via the modem, based on a determination that that application is running in a background state, and using the differential traffic control policy to selectively allow access by the application to the modem based on

a determination that the application is running in a foreground state.

More specifically, the only independent claim (Claim 1) recites:

[1pre] A wireless end-user device, comprising:

[1a] 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;

[1b] 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;

[1c] one or more processors configured to

[1d] determine, for a first end-user application capable of running in a background state and capable of running as a foreground application, whether the application is running in a background state or as a foreground application, and

[1e] control, via an application program interface (API), application access for Internet service activities provided through the WWAN modem and the WLAN modem, to, **based on a first differential traffic control policy, selectively block and allow access by the first end user application to the WWAN modem at a time when data for Internet service activities is communicated through a WWAN modem connection** to the at least one WWAN,

[1f], [1g] *wherein the access is **selectively blocked based on a determination that the first end-user application is running in a background state**, and wherein the access is **selectively allowed based on a determination that the first end-user application is running as a foreground application**.*

Ex. 1001 (“’701 Patent”), Claim 1.

As explained by the ’701 Patent, this solution allows the system to prevent particular applications from accessing the modem (and thus prevent them from consuming any network resources) while running in the background:

Advantageously, the differential network access control engine 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.

...

In an illustrative example, the device 2700 blocks chatter for an application running in the background that is attempting to report device or user behavior. The application traffic prioritization engine 2710 determines that the chatter has **zero priority, such that the network service consuming application 2702 is prevented from consuming any resources**. The user can be sent a notification by the application traffic override engine 2718 that **their control policy prohibits the application from consuming network resources**, but that the user can opt to deviate from the control policy if they are willing to pay for the consumed resources. If the user is willing to pay for the

resources, traffic can be sent at a certain rate from the application traffic cache 2716 through the network interface 2720, or perhaps sent without using the application traffic cache 2716.

Ex. 1001 at 102:12-37. Accordingly, the invention of the '701 Patent allows the system to not merely decrease the priority of network traffic sent by an application running in the background, but to prevent all access of that application to the modem. Preventing applications running in the background from consuming *any* network resources is especially important in the context of WWAN modems, because as the '701 Patent recognizes, “network resources” over WWAN connections typically incur a cost that the user may be charged for. *See generally* Ex. 2007 at 1 (February 10, 2010 article describing “two data plans” offered near the priority date of the '701 Patent: “\$10 for up to 25 megabytes or \$20 for up to 75 megabytes”). As such, the '701 Patent allows a network traffic control policy to prevent particular applications that are running in a background state from consuming *any* of these valuable network resources unless, for example, “the user is willing to pay for the resources.” Ex. 1001 at 102:23-37.

III. LEVEL OF ORDINARY SKILL IN THE ART

The Petition proposes that a POSITA in the field of the '701 Patent “would have had (1) at least a bachelor’s degree in computer science, electrical engineering, or related field, and (2) three to five years of experience with networking, power

consumption of networked computing devices, and/or wireless digital communications systems. Additional graduate education could substitute for professional experience, and *vice versa*.” Ex. 1003 ¶18 (cited by Pet. 12 n.2).

Patent Owner believes that Petitioner’s stated level of skill is too vague. For example, it is unclear why Petitioner proposes “three to five years of experience,” when three years of experience plainly qualifies a person as a POSITA under Petitioner’s definition. And Petitioner’s proposal that “[a]dditional graduate education could substitute for professional experience, and *vice versa*” also lacks clarity. *See Nespresso USA, Inc. v. K-Fee Sys. GmbH*, IPR2022-01574, Paper No. 9 (PTAB Apr. 10, 2024) (“As for [the contention] that ‘[a]dditional education might substitute for some of the experience, and substantial experience might substitute for some of the educational background,’ we find that this characterization is too vague.”).

For purposes of this response, Patent Owner agrees that a person having a bachelor’s degree in computer science, electrical engineering, or a related field, plus at least three years of experience with networking, power consumption of networked computing devices, and/or wireless digital communication systems qualifies as a POSITA. The three years of additional experience can be in either a professional setting or a research setting. *See* Ex. 2009 ¶28.

IV. CLAIM CONSTRUCTION

The Petition states that “no formal claim constructions are necessary.” Pet. at

2. For purposes of this response, Patent Owner agrees that no formal claim construction is necessary.

V. THE PETITION FAILS TO SHOW A REASONABLE LIKELIHOOD OF PREVAILING FOR ANY CHALLENGED CLAIM

Claim 1 (from which all challenged claims depend) recites, in part:

[1c] one or more processors configured to

[1d] determine, for a first end-user application capable of running in a background state and capable of running as a foreground application, whether the application is running in a background state or as a foreground application, and

[1e] control, via an application program interface (API), application access for Internet service activities provided through the WWAN modem and the WLAN modem, to, based on a first differential traffic control policy, selectively block and allow access by the first end user application to the WWAN modem connection to the at least one WWAN,

[1f] wherein the access is selectively blocked based on a determination that the first end-user application is running in a background state....

Ex. 1001, claim 1.

As shown below, the Petition fails to show that its Rao alone *or* in the Petition’s proposed combination of Oestvall fails to render obvious at least these

claim requirements. The following sections explain first why Rao alone does not satisfy the claim requirements, and then explain why Rao in combination with Oestvall does not satisfy the requirements.

A. The Petition fails to show that Rao disclose “selectively block[ing]... access by the first end user application to the WWAN modem... wherein the access is selectively blocked based on a determination that the first end-user application is running in a background state.”

The Petition relies solely on Rao for limitation [1e]’s requirement of “control[ling]... application access for Internet service activities provided through the WWAN modem and the WLAN modem” “based on a first differential traffic control policy.” Pet. 21-22, 25-26.

The Petition acknowledges that “block[ing]... access by the first end user application to the WWAN modem” requires blocking an application’s access to the WWAN modem. *See* Pet. 29 (alleging: “A POSITA would have understood and found obvious that, in Rao, the network packets generated by an application can be dropped or discarded before reaching Rao’s network interface 118 (‘WWAN modem’), *which means that the application’s access to the network interface 118* (‘access by the first end-user application to the WWAN modem’) *is blocked.*”).

This understanding, in which the first end user application must be blocked from accessing the WWAN modem, is consistent with a POSITA’s understanding of the plain meaning of the claim in view of the intrinsic record. *See* Ex. 2009 ¶¶36-

37. For example, the specification of the '701 Patent teaches “block[ing]” access as distinct from less drastic remedies that apply to individual network packets, such as delaying traffic by putting that traffic into lower-priority queues. Ex. 1001, 13:20-25, 55:58-62, 92:9-19. The '701 Patent describes “allow/block” as a separate operation from “queue[ing]” or “defer[ring]” (*id.* 92:9-19) and clarifies that “blocking” access applies to an entire network connection rather than individual network packets, for example, *after* a connection is opened. *Id.* (“[B]efore a connection is allowed to be opened (e.g., before a socket is opened), transmission, or a flow/stream is initiated, it is blocked.”); *see also id.*, 102:23-46 (teaching that an advantage of “***block[ing]***” the application is that “the network service consuming application is ***prevented from consuming any [network] resources***” so that costly network resources are not used when the user does not want them to be). Accordingly, to satisfy the claim requirements, a system must block an application’s access to the WWAN modem, not simply queue such access. *See* Ex. 2009 ¶36-37.

The Petition’s theory as to how an “application’s access to the network interface 118... is blocked” is based on “network packets generated by an application [being] dropped or discarded before reaching Rao’s network interface 118.” Pet. 29. Rao limits its discussion to discarding individual network packets in scenarios where (1) a network disruption or congestion occurs; or (2) network disruption/congestion is ***not*** occurring, and a packet is classified as “unwanted.” As

explained in further detail below, none of these scenarios satisfies the claim requirements, and the Petition does not provide any motivation to implement a combination based on Rao in a manner that would meet the claim requirements. *See* Ex. 2009 ¶¶38-58.

1. Rao’s discarding of certain packets during network disruption or congestion does not meet the claim requirements—as the Petition acknowledges.

Turning to the first of these scenarios, Rao teaches that certain packets can be discarded during a network disruption. *See* Ex. 1005 (“Rao”) ¶[0207]. But discarding packets during a network disruption does not constitute controlling application access “*at a time when data for Internet service activities is communicated through a WWAN modem*” as required by claim limitation [1e], because Rao teaches that in cases of network disruption, the lower network layers responsible for communicating data across the network connection are disestablished such that no data is communicated via the modem. Ex. 2009 ¶39; *see* Ex. 1005 ¶[0053] (teaching that the “first portion of the network stack comprises one or more layers of the network stack below the layer of the first protocol,” and that “a disruption in the network connection caus[es] the first portion of the network stack to be disestablished”); *id.* at FIG. 6B (teaching that “discarding communications” at step 670 only occurs between (1) a detected disruption at step 660 and (2) re-establishing

the first portion of the network stack at step 675 and communicating network packets at step 680).

Indeed, the Petition acknowledges that this instance of discarding packets would not meet the claim requirements, as the Petition concedes these teachings are “set forth in the context of ‘a network disruption shielding technique,’” and alleges only that “*a POSITA would have found it obvious* to also use policies 520 to discard low priority packets where the network is *not* disrupted.” Pet. 28.

Another instance Rao teaches discarding packets is where certain network packets may not be communicated due to “network[] factors, such as congestion, even though the network packets may have a higher priority than other network packets in a queue.” Ex. 1005 ¶[0195]. The Petition does not rely on this teaching of Rao in its discussion of the “selectively block[ing] access” limitation (*see* Pet. 26-30), and for good reason. Specifically, the Petition alleges that an application running in the background results in *low* queue priority in Rao, yet this portion of Rao teaches discarding “*higher priority*” packets, such that those packets would *not* be discarded based on recognizing that the issuing application was running in the background as would be required for this discarding of packets to (even arguably) satisfy the claim language. *See* Ex. 2009 ¶40.

2. Rao’s discarding of certain “unwanted” patents is not based on whether the application is running in the background.

Turning to the scenario where packets are discarded and the network is *not* disrupted or congested, Rao provides only the following disclosure:

The filter 322 may use a filter table for filtering packets. The filtering table is used to determine what action to take against packets, such as packets intercepted by the packet capture mechanism 365. *The filter 322 can inspect the contents of the packets, such as routing information, to determine the action to take based on the filtering table.* In some embodiments, the *filter 322 may drop or accept the network packets **depending on their content**.* In other embodiments, the filter 322 may route the network packets to the agent 326 based on the packets content and/or the filtering table. *The filter table may also be used to ensure that **unwanted packets are discarded**.* The filter 322 may be used to ***deny access to particular protocols** or to prevent unauthorized access from remote computers by **discarding packets to specified destination addresses**.*

Ex. 1005 ¶[0102]; Ex. 2009 ¶41. Thus, Rao’s disclosure of discarding “unwanted” packets teaches three categories of information on which a decision is made that a packet should be discarded—the “content” of the packet, the packet’s “protocols,” and the packet’s “destination address[.]” Ex. 1005 ¶[0102]. None of these are based in any part on whether an application is running in the background (as Claim 1 requires). *See* Ex. 2009 ¶¶41-44.

First, Rao teaches that packets may be discarded “depending on their content” (e.g., “routing information”). Ex. 1005 ¶[0102]. But there is no teaching in Rao or

allegation by the Petition that the “content” of a packet would indicate whether the packet was issued by an application running in the background. Ex. 2009 ¶42. Indeed, an application may transmit a packet having a given content (e.g., routing information) while running in the foreground; but the application would transmit a packet having *identical* content (e.g., routing information) while running in the background. *Id.* Because the foreground or background status of an application in Rao does not affect the content of packets issued by that application, discarding packets in this scenario could not constitute selectively blocking application access to the modem “based on a determination that [the] application is running in a background state.” *Id.*

Rao also teaches that packets may be deemed “unwanted” and thus be discarded if they are using “particular protocols” and packets directed to “specified destination addresses.” Ex. 1005 ¶[0102]. But again, neither what protocol is used for communication nor the destination address of a given packet depends on (or is even alleged to depend on) whether the application that issued the packet was running in the background or foreground. Ex. 2009 ¶43. For instance, applications can use the same protocols and destination addresses when running in either the foreground or the background. Accordingly, discarding packets based on a specified protocol or destination address does not constitute selectively blocking application

access to the modem “based on a determination that [the] application is running in a background state.” *Id.*

More generally, there is no allegation or disclosure that packets would be considered “unwanted packets” based on a determination that the issuing application was running in the background. While Rao *is* alleged to teach that packets generated by background applications may be given lower priority than packets generated by foreground applications (*see* Ex. 1005 ¶¶[0046], [0189]), this is in the context of assigning foreground packets a higher queuing priority than background packets. Ex. 2009 ¶44. Rao never suggests ***discarding*** packets of an application based on a determination that the application is running in the background. *Id.* Indeed, Rao is explicit that “one ordinarily skilled in the art will recognize and appreciate that the remote access client of the present invention ***will communicate the network packets from the queues*** in a manner according to or consistent with the determined priorities” (Ex. 1005 ¶[0194]), and Rao never suggests that its system is configured to ***discard*** low-priority packets when there is no network disruption. Ex. 2009 ¶44.

3. The Petition’s assertion that Rao’s filter “can be used to” discard low-priority packets is contrary to Rao’s queueing system.

The Petition appears to recognize that Rao does not teach or suggest discarding packets on the basis of an application’s background status, and thus alleges that Rao’s filter “***can be used to*** ‘discard[] packets’ having the lowest priority

(e.g., ‘unwanted packets’) such that the packets are not transmitted to the network.”

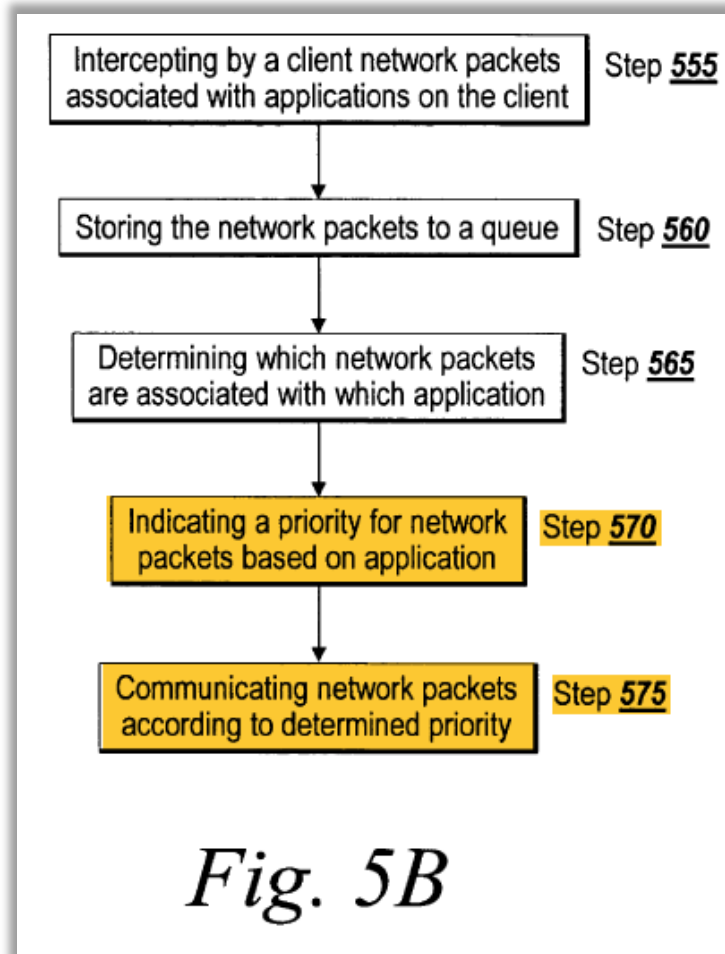
Pet. 29 (citing Ex. 1003, which contains the same verbatim assertion).

However, although Rao is alleged to teach that an application’s background status may reduce its priority (such that packets from that packets from background applications may be sent, for example, after packets from foreground applications), Rao does *not* teach that an application’s background status would result in what the Petition calls “deprioritizing those... packets *entirely*” “such that the packets are [*never*] transmitted to the network.” See Pet. 28-29; Ex. 2009 ¶¶45-48.

In fact, Rao discusses filtering out “unwanted packets” (i.e., packets to be discarded entirely), as a mechanism wholly distinct from assigning packets a priority for eventual communication. Compare Ex. 1005 ¶[0102] (discussing packets being “unwanted” by virtue of the “protocols” they use or their “destination addresses”) with *id.* ¶[0184] (“[T]he *outbound network packets* generated by an application 338a-338n on the client 105 *are prioritized* by the client 105 *prior to transmission* based on the type and/or priority of the application 338a-338n.”) and *id.* ¶[0194] (“[T]he network packets are organized into priority queues 540a-540[n] so that the network packets of the highest priority queue 540a-540n are communicated first, and then the next highest priority queue 540a-540n second, and so on.... Regardless of the queue 540a-540n organization and management, one ordinarily skilled in the art will recognize and appreciate that the remote access client of the present

invention *will communicate the network packets* from the queues...”); see Ex. 2009 ¶46.

For instance, as shown in Rao’s FIG. 5B (reproduced below), after packets are assigned a priority “based on application” in step 570, those network packets are *then ultimately communicated* over the network in step 575:



Ex. 1005, FIG. 5B (annotated); Ex. 2009 ¶47.

Rao’s claims also make clear that even when a packet may have lower priority than other packets, that lower-priority packet is nevertheless eventually

communicated via the modem. *See* Ex. 1005 at Claim 4 (only preventing a lower-priority packet from being communicated “*ahead of*” higher priority packets); *id.* Claim 5 (discussing “holding” a deprioritized network packet, and then “releasing” that hold “upon communication” of certain higher priority packets); Ex. 2009 ¶. This is further confirmed because Rao teaches assignment of priority involves at least *some* (non-zero) level of priority, contrary to the teachings of the ’701 Patent which disclose that a “priority level 0” can be assigned to “block[]” modem access as opposed to non-zero priority levels which “provide” modem access. *See* Rao, ¶[0180] (referring to “levels of priority, such as high, medium, low, or numerically such as priority 1 . . . 10”) (ellipses in original); Ex. 1001 at 75:66-76:7 (disclosing that “a priority level 0 can provide a blocked network access, while priority levels between 1 through 9 can provide relatively increasing prioritized network access”); Ex. 2009 ¶47.

In sum, although the Petition purports to rely on Rao’s discussion of analyzing packets and discarding them as “unwanted packets” based on their destination addresses or the protocol used to create the packet (*see* Ex. 1005 ¶[0102]), this does not teach or suggest determining that a packet is an “unwanted packet” based on whether the application that sent the packet is running in the foreground or the background. Ex. 2009 ¶48.

4. The Petition’s assertions about how Rao could be modified are insufficient and fail to support obviousness.

Furthermore, the Petition provides no plausible motivation to discard packets merely because they were assigned a lower priority than other packets (as opposed to being deemed “unwanted packets”).² Ex. 2009 ¶¶49-53.

First, the Petition alleges that a POSITA would recognize that Rao’s “filter 322 *can be* used to ‘discard[] packets’ having the lowest priority... such that the packets are not transmitted to the network.” Pet. 28-29. But an allegation that a POSITA *could have* pursued a particular configuration is irrelevant to whether that configuration *would have been obvious*. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”) (emphases in original).

² As noted previously, Rao treats assignment of a lower priority to a packet as distinct from determining that the packet is an “unwanted packet[.]” See Ex. 1005, ¶[0102] (making clear that “unwanted packets” are discarded); *id.* at ¶¶[0184], [0194], FIG. 5B, & Claim 5 (showing that lower priority packets are eventually communicated and thus not discarded). While packets may be assigned higher or lower priority for a variety of reasons, Rao only teaches that packets would be discarded absent network disruption if those packets had certain content (e.g., a specified destination address) or used specified protocols, none of which is dependent on the requesting application’s background status. See *id.* ¶[0102]; Ex. 2009 ¶49 n.3.

Indeed, where Rao does not disclose discarding packets having lowest priority, the Petition's conclusory allegation that a POSITA would recognize that this *could* be done is not based on facts in the prior art and is instead based on impermissible hindsight. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (stating that a "factfinder... must be cautious of arguments reliant upon ex post reasoning"); MPEP § 2142 ("[I]mpermissible hindsight must be avoided and ***the legal conclusion must be reached on the basis of the facts gleaned from the prior art.***"). As explained by Patent Owner's expert Dr. Haas, discarding packets on the basis of their low priority is contrary to Rao's teachings. *See* Ex. 2009 ¶¶50, 45-48.

The Petition also alleges that "a POSITA would have found it obvious to... use [Rao's] policies 520 to discard low priority packets where the network is not disrupted but there exists a similar desire to, nevertheless, reduce communications over the network (e.g., due to reductions in bandwidth of the network, or a surge in higher priority packets to be sent over the network)," which according to the Petition "would have achieved the benefit of ensuring that communication resources are selectively freed up for higher priority packets/communications." *Id.* at 28. But this presents no alleged benefit over Rao's ***existing*** system, in which prioritizing higher-priority communications over lower-priority communications (without *discarding* the lower-priority packets) ***is specifically taught as the way to ensure*** that communication resources are used first ("freed up") for higher priority packets. Ex.

2009 ¶51. As the Petition acknowledges, Rao *already* teaches placing packets into various queues and communicating packets “according to their determined priority.” Pet. 22 (quoting Rao ¶¶[0184]-[0190]). For example, Rao makes clear that the function and goal of its system is to ensure that higher-priority packets will be transmitted before lower-level packets are eventually communicated. *See, e.g.*, Rao, Claims 4, 5; Pet. at 12 (“Rao describes applying policies to prioritize transmission of higher-priority network packets over lower-priority network packets.”).

The Petition does not explain why a POSITA would have viewed *discarding* of low-priority packets as beneficial in ensuring that high-priority communications receive adequate resources, particularly relative to Rao’s disclosed process of *queuing* and *prioritizing* packets (which ensures adequate resources for high-priority packets while allowing the lower-priority packets to not be discarded but to rather be transmitted at a later time). *See generally* Pet. 28-29 (providing no explanation as to why discarding packets in the proposed manner would accomplished any benefit over what is disclosed in Rao). Accordingly, the Petition provides no motivation to modify Rao’s system to *discard* lower-priority packets based on determining that those packets correspond to a background application. *See* Ex. 2009 ¶52.

Moreover, while the Petition cites the expert declaration in support of its conclusory allegations of obviousness (*see* Pet. 28-29, citing Ex. 1003 ¶101), the declaration merely parrots the Petition’s conclusory allegations and should

accordingly be given little weight. *See* 37 CFR § 42.65 (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper No. 9 at 15 (Aug 24, 2022) (precedential) (denying institution and giving “little weight” to “cited declaration testimony [that] is conclusory and unsupported” and “adds little to the conclusory assertion for which it is offered to support”).

The Petition’s failure to allege any benefit not already present in Rao to modify Rao’s system to discard packets from low-priority traffic is in contrast to the ’701 Patent, which makes clear that particular applications are prevented from communicating over the network while running in the background to avoid unnecessary data costs to the user (*see* ’701 Patent at 102:23-37), a concept not discussed in either Rao or Oestvall. This further shows that the Petition’s assertion that a POSITA would have modified Rao lacks reasoned analysis and evidence that are necessary to prove obviousness. *See* Ex. 2009 ¶53 (explaining that “the inventor of the ’701 Patent recognized a benefit to the claimed invention that a POSITA would not have understood (and which Dr. McDaniel does not allege a POSITA would have understood) from either Rao or Oestvall”).

5. **Even discarding individual packets under certain conditions does not constitute blocking “access by the first end user application to the WWAN modem,” as limitation [1e] requires.**

Finally, even *assuming* that a POSITA would have been motivated to discard certain low-priority packets under certain conditions where network disruption did not exist (e.g., “a surge in higher priority packets to be sent over the network”), the Petition’s Rao-based theory would still fail. This is because the Petition does not explain how discarding individual low-priority packets would constitute blocking “access by the first end user application to the WWAN modem” as Claim 1 requires. Even if particular packets may be discarded, nothing in Rao suggests that an *application* will be blocked from accessing the WWAN modem (rather than just having a certain portion of its packets being discarded on a case-by-case basis, while still maintaining access to the modem). Ex. 2009 ¶54.

On this point, the Petition merely asserts, without explanation, that if “network packets generated by an application [are] dropped or discarded before reaching Rao’s network interface 118,” then “the application’s access to the network interface 118... is blocked.” Pet. 29. But that is not true; to the contrary, Rao teaches that individual packets are discarded while the application *maintains* access to the modem, and without taking the drastic step of *blocking* access by the application to the WWAN modem. Ex. 2009 ¶55.

For instance, Rao teaches that its system allows “lossy protocol network packets [to] get to the recipient on time rather than getting to the recipient reliably” (Ex. 1--5, ¶[0077]; *see also id.* ¶[0153]), which indicates that even if lossy protocol

packets are discarded in certain instances (i.e., the packets do not arrive “reliably”), *the application issuing those packets still is able to maintain access to the modem* (such that the lossy packets are able to arrive “on time”). In other words, Rao teaches that for lossy protocol packets (such as packets for certain real-time voice protocols), certain of those packets may ultimately be discarded resulting in some degradation of sound quality. The fact that these packets are not transmitted “reliably” (i.e., some of those packets are discarded) is acceptable, but would **not** be acceptable is for the application’s access to the modem to be blocked, such that none of the packets would arrive “on time.” In sum, the application’s access to the modem is not “selectively block[ed]” (Ex. 1001, Claim 1) merely by virtue of packets being discarded, because Rao teaches that even if certain packets are discarded, the application maintains access to the modem such that it will continue to transmit packets so that they can arrive “on time.” Ex. 2009 ¶56

Accordingly, the premise underlying the Petition’s theory—that if “network packets generated by an application [are] dropped or discarded before reaching Rao’s network interface 118,” then “the application’s access to the network interface 118... is blocked” (Pet. 29)—is incorrect, because applications in Rao can maintain access to the modem despite packets being discarded. Ex. 2009 ¶57.

Thus, even if the Petition **could** establish the obviousness of discarding individual low-priority packets on the basis of the issuing application’s background

status in the proposed combination (which it cannot), that would still not render obvious “selectively *block[ing]... access by the first end user application to the WWAN modem*” wherein the access is blocked “based on a determination that the first end-user application is running in a background state” as required by all challenged claims.

Indeed, discarding traffic on a packet-by-packet basis (without actually blocking the corresponding application’s access to the modem, as the ’701 Patent claims and teaches) would not have had the benefits disclosed by the ’701 Patent where a policy “prohibits the application from consuming network resources” that would incur a cost to the user, such that a particular background application would only be able to access the modem “if [a user is] willing to pay for the consumed [network] resources.” *See* Ex. 1001 at 102:23-37; Ex. 2009 ¶58.

Accordingly, the Petition fails to show that a POSITA would have found it obvious to use Rao’s alleged differential traffic control policy to selectively block an application’s access to a modem during a period of time when data is communicated via the modem based on determining that the application is running in the background, as required by all challenged claims.

B. The Petition’s proposed combination of Rao with Oestvall does not cure the deficiencies discussed above.

Presumably because Rao alone does not disclose the requirements of claim 1, the Petition proposes a specific combination of Rao with Oestvall wherein the

system would “prevent an untrusted application from running or being given access to a service that consumes resources.” Pet. 13-14; *see also id.* at 14 (the Petition’s annotation of Rao’s Figure 5A, making clear that in the combination, the system would “[p]revent access to device resources for ‘untrusted applications’ running in the background,” and that permission to access device resources is only permitted for “trusted” applications or “untrusted applications” running in the foreground).

This proposed combination, which would prevent untrusted applications from running, fails to meet the claim requirements for numerous reasons. *See* Ex. 2009 ¶¶59-67.

First, the Petition’s proposed combination does not “selectively block[]” WWAN access “based on a determination that the first end-user application is running in a background state” as required by claim 1, because in the proposed combination, untrusted applications are *prevented* from running in a background state (and thus there is never any determination that they *are* running in a background state). Ex. 2009 ¶61. For instance, Oestvall teaches that the application would be “actively prevented from running” at the same time that the “untrusted application is placed into the background” (Ex. 1006 ¶[0021]), and the Petition’s theory incorporates this implementation of Oestvall. *See* Pet. 13-14 (making clear that in the proposed combination, access to device resources is prevented for “‘untrusted applications’ running in the background”). In other words, there is never any

instance of untrusted applications actually running in the background in the proposed combination, and thus there can be no “determination” that they are running in the background.

Third, to the extent that Oestvall’s prevention of a background untrusted application from running constitutes the “selective[] block[ing]” of WWAN access, Dr. McDaniel does not show (or even allege) that this would be done through an API as required by limitation [1e]. Indeed, *none* of the APIs referenced by the Petition are APIs that are even alleged to prevent an application from running. *See* Ex. 2009 ¶¶63-67.

For instance, the Petition relies on a discussion in Rao where “the priority of network packets” may be communicated via an API (Pet. 23), but communicating priority of network packets would not (and is not alleged to) prevent an application from running or otherwise block an application’s access to the WWAN modem as the claim requires. Ex. 2009 ¶64.

The Petition also asserts that “Dive-Reclus... teaches using APIs in accessing a network.” Pet. 24 (citing Ex. 1026 at 16:23-17:28, 20:1-12). But again, the use of an API to access a network is starkly different than the use of an API to prevent applications from running (or otherwise to *block* application access to the WWAN), as would be required to meet claim limitation [1e] under the Petition’s combination of Rao with Oestvall. Ex. 2009 ¶64.

The Petition further references “several types of APIs in regulating applications” (Pet. 24-25) but again, *none* of those APIs are used for preventing applications from running. Ex. 2009 ¶65. For instance, the Petition re-references “Dive-Reclus [which] teaches permissions regulating network access by a third-party application that uses an API call [and] a POSITA would have found obvious that a permission decision (grant, deny) is communicated to the third-party application through a corresponding API.” Pet. 24-25 (citing Ex. 1026 at 16:23-17:28, 20:1-12). This however does not relate to using an API to prevent an application from running—indeed, an API call from an application assumes that the application *is* running, contrary to the Petition’s proposed combination. Ex. 2009 ¶65.

The Petition also refers to the “Java sockets API” (Pet. 25), but again, does not explain *how* (or why) the Java sockets API would have been used to control (and block) application access to the WWAN in the way the Petition’s combination require. Indeed, the Petition’s discussion of the Java sockets API assumes that the application *would have been running*, because the Petition asserts “that the application would have received an indication, via the Java sockets API, of the network access condition.” Pet. 25. Of course, for an application to receive an indication, it would need to be running, contrary to the Petition’s proposed combination and Oestvall’s teachings. Furthermore, “receiv[ing] an indication”

appears to be irrelevant to the claim language of claim 1 of the '701 Patent, which requires “**control**, via an [API],... to... selectively block... access.” Ex. 1001 at claim 1. And the Petition does not explain how providing an indication to an application would constitute the claimed “control.” *See* Ex. 2009 ¶67.

Thus, the Petition fails to explain how any API would, in the proposed combination, “control... application access... to... selectively block... access by the first end-user application to the WWAN modem” as limitation [1e] requires. *See* Ex. 2009 ¶¶63-67.

For the reasons discussed above, the Petition’s proposed combination of Rao with Oestvall fails to satisfy the requirements of claim 1 (and thus fails to render any challenged claims unpatentable).

VI. CONCLUSION

For at least the foregoing reasons, Patent Owner respectfully requests that all challenged claims be found not unpatentable.

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 6,281 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on July 8, 2024, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

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