

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC, CELCO 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

**DECLARATION OF ERIK DE LA IGLESIA IN SUPPORT OF PATENT
OWNER'S PRELIMINARY RESPONSE TO THE PETITION**

I declare that all statements made herein of my own knowledge are true and that all
statements made on information and belief are believed to be true.

Executed on September 18, 2024, at Mountain View, California.



Erik de la Iglesia

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I, Erik de la Iglesia, hereby declare as follows:

I. Introduction

1. I am over the age of eighteen (18) years and otherwise competent to make this declaration.

2. I have been retained as an expert witness on behalf of Patent Owner for the above-captioned *inter partes* review (“IPR”). I understand that the petition for *inter partes* review involves U.S. Patent No. 9,215,613 (“the ’613 patent”).

3. I make this declaration based on my personal knowledge, educational background and training, consideration of the materials I discuss herein, and my expert opinions.

4. My work on this matter is being billed at my normal hourly consulting rate of \$750, with reimbursement for actual expenses. My compensation is not related to the outcome of any proceeding involving the ’613 patent. I have no personal interest in the outcome of the case.

5. In preparing this Declaration, I have reviewed and considered the ’613 patent, the ’613 patent’s prosecution history, the Petition and prior art references submitted with the Petition, the declaration submitted by Dr. Houh in this proceeding, and each document cited in my declaration.

II. Background and Qualifications

6. My qualifications for forming the opinions given in this declaration are summarized here and are addressed more fully in my curriculum vitae, which is submitted as Exhibit 2002.

7. I hold a Bachelor of Science degree in Electrical Engineering from the University of Florida, and a Master of Science degree in Electrical Engineering from Stanford University. While at Stanford, I was an NSF Graduate Research Fellow. My graduate focus included VLSI CMOS architecture, high-speed circuit design, computer networks and protocols, and artificial intelligence. I have worked in several computer and electrical engineering related fields for over 25 years resulting in 68 issued U.S. patents that have been cited over 2850 times in USPTO patent applications. Since 2003, I have served in a number of chief architect and founder roles of companies that have been acquired or gone public. My experiences include the design or implementation of networks and network-based computation and protocol systems similar to the technology of the '613 patent, including systems for content targeting based on user behavior across devices.

8. Between December 1997 and November 1999, I was a circuit design engineer at Intel Corporation within the Mobile and Handheld Products Group. My responsibilities included working on several aspects of mobile processors and chipsets including clock and power distribution, dynamic clock frequency

selection, and the circuit design, device simulation, and validation of such features. Until March of 2000, I worked on similar functionality within the Microprocessor Products Group for the Itanium 3 and 4 products.

9. My work in power distribution included thermal modeling and predictive control of silicon devices and their packaging such as multi-tiered cooling systems for embedded, mobile, and desktop environments. Such systems included multiple tiers of thermal sensors, active and passive thermal control systems, and the feedback and analytic firmware and software control. My models were part of the development of the Thermal Design Power (TDP) metrics used by OEM and system designers to plan thermal control solutions for consumer and industrial products.

10. Between March 2000 and September 2003, I worked as a logic designer and architect for WebStacks and, through acquisition, Extreme Networks. WebStacks built a fully hardware-based TCP and HTTP processing stack for network processing functions including load balancing, proxy processing, and content rewriting. I was responsible for the architecture and design of the HTTP processing engine including header extraction and processing.

11. Between August 2003 and August 2007, I worked as Founder, Chief Architect and Director of Engineering for Reconnex, later acquired by McAfee. Reconnex built a gigabit line-rate network security analyzer capable of

classification, heuristic analysis, and policy enforcement on arbitrary protocols and content types. The Reconnex product captured and analyzed content transmitted over the internet using HTTP and other protocols, including storage protocols. Design of the Reconnex system was based on a modified and customized version of the Linux kernel which included specifically designed driver source code and interfacing between the application and kernel domains. Reconnex technology was employed in the audit and compliance verticals based on its ability to quickly analyze and classify the content of transmissions and interact with protocols and communications crossing corporate and departmental boundaries.

12. Between August 2007 and September 2008, I founded Strangways, a company focused on addressing messaging security for webmail and internet messaging protocols. Products and technology developed by Strangways were sold to SendMail Inc., Iron Port (Cisco), and other companies. The Strangways product utilized a Squid caching server and ICAP content rewrite server to translate HTTP to SMTP.

13. Between September 2008 and April 2014, I worked as Chief Architect for Gridiron Systems and, through acquisition, Senior Director of Technology for Violin Memory. I held the Senior Director position with Violin Memory both before and after the company's IPO. My responsibilities included architecture and

design of flash media controllers, adaptive caching design, and machine learning for application storage behavior analytics.

14. The Gridiron product was a storage accelerator used in many analytic environments such as big data architectures with constant ingest and processing of financial, consumer and IoT data. In my role as Chief Architect, I often worked with customers to implement and accelerate their analytics environments and spoke on related topics at trade shows and industry user groups. During product development, I worked with the data science team at Shopzilla to improve database and storage performance for real-time shopping recommendation and user tracking for advertising.

15. My work at Webstacks and Reconnex related directly to packet processing including concepts such as priority and rules based processing relevant to the current proceeding. Approximately two dozen of my issued patents relate directly to these concepts.

16. Additional information regarding my employment history and prior expert testimony is included in Exhibit 2002. As reflected in Exhibit 2002, I have consulted on several matters involving intellectual property disputes including instances of alleged patent infringement requiring analysis of source code, reviewing and analyzing patents, writing expert reports, and testifying in court. I have testified at deposition and at trial in a number of these cases.

III. Legal Principles

A. Claim Construction

17. I understand that the first step in performing a validity analysis of the patent claims is to interpret the meaning and scope of the claims by construing the terms and phrases found in those claims. I understand that the appropriate construction of a claim term is its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent and the prosecution history.

18. I understand that standard for claim construction in an *inter partes* review is the same standard as is applied in district court proceedings.

19. I understand that a determination of the meaning and scope of the claims is a matter of law. I have been informed that to determine the meaning of the claims, one should consider the intrinsic evidence, which includes the patent's claims, written description, and prosecution history.

B. Burden of Proof

20. I understand that in an *inter partes* review, the petitioner has the burden of proving unpatentability by a preponderance of the evidence.

C. Anticipation

21. I have been instructed by counsel and understand that a reference is anticipated if a single prior art reference discloses each and every claim element,

either explicitly or inherently, as arranged in the same way as in the claim. I understand that where even one claim element is not disclosed in a reference, a contention of anticipation fails.

22. I further understand that when a reference fails to explicitly disclose a claim element, that reference inherently discloses that element only if the reference must *necessarily* (or “inherently”) include the undisclosed claim element.

D. Obviousness

23. I have been instructed by counsel and understand that a combination of prior art references may render a claim obvious if, at the time of the invention, a person of ordinary skill in the art would have selected and combined those prior-art elements in the normal course of research and development to yield the claimed invention.

24. I understand that in an obviousness analysis, one should consider the *Graham* factors, including: the scope and content of the prior art; the differences between the claimed inventions and the prior art; and the level of ordinary skill in the art. I further understand the obviousness analysis is to be performed on a claim-by-claim basis. I understand that a person of ordinary skill in the art is a person of ordinary creativity, not an automaton.

25. I have been instructed by counsel and understand that obviousness requires more than a mere showing that the prior art includes separate references

covering each separate limitation in a claim under examination. I understand obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have been motivated to combine those references in a manner that would include all limitations of the challenged claim, and, in making that combination, a person of ordinary skill in the art would have had a reasonable expectation of success.

26. I also understand that an obviousness analysis must be conducted with awareness of the distortion caused by hindsight bias and with caution of arguments reliant upon *ex post* reasoning. For instance, I understand that when considering obviousness, I should put myself in the position of a person of ordinary skill in the field at the time of the invention, rather than considering new information that is known today, but was not known before the priority date of the challenged patent.

IV. Person of Ordinary Skill in the Art

27. Dr. Houh proposes that a POSITA in the field 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. A POSA might substitute more education for less experience, or vice versa.” Ex. 1003, ¶61. For purposes of this my analysis, I do not disagree with this proposed level of skill in the art. I meet at least these

requirements of a POSITA, and have met those requirements since before the priority date of the '613 patent.

V. Overview of the '613 Patent

28. At a high level, the '613 patent is generally directed to using a differential traffic control policy to selectively allow or deny activities by or on behalf of an application based, *inter alia*, two different classifications: a classification of a wireless network, and a classification of whether the application is interacting with the user in the device user interface foreground.

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

[1.0] 1. 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, Claim 1.¹

¹ All emphases in this declaration are added.

30. As explained by the '613 patent, this solution allows the system to prevent particular applications from accessing a 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, 102:12-37.

31. Thus, the invention of the '613 patent allows the system to not merely decrease the priority of service activities corresponding to an application running in the background, but to selectively deny those service activities in their entirety, based on the specific wireless network that is currently connected to and based on the application's background status.

32. A POSITA would have understood that preventing services from background activities from consuming *any* network resources is especially important in the context of WWAN connections, because as the '613 patent recognizes, "network resources" over WWAN connections typically incur a cost that the user may be charged for. *See generally* Ex. 2025 at 1 (February 10, 2010 article describing "two data plans" offered near the priority date of the '613 patent: "\$10 for up to 25 megabytes or \$20 for up to 75 megabytes"). As such, the '613 patent allows a network traffic control policy to prevent service activities from 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, 102:23-37.

VI. Claim Construction

33. I understand that Dr. Houh proposes no claim constructions in his declaration (Ex. 1003, ¶59), and for purposes of this declaration I also propose no

constructions. Instead, I apply the plain and ordinary meaning of claim terms to a POSITA in light of the intrinsic record.

VII. In my opinion, challenged claim 1 would not have been obvious under Dr. Houh’s invalidity theory.

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

35. The plain language thus 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. Because the first “classification” is a classification of a network “to which the device *currently* connects,” a POSITA would understand that the selective denial or allowance of an Internet service activity must occur during an active network connection (and must further be based on a foreground classification).

36. As explained further below, I do not believe that the prior art discloses or renders obvious this aspect of claim 1. In Dr. Houh’s Ground 1 combination, only Rao and Freund are alleged to disclose the “foreground” classification aspect of the claim language. *See* Ex. 1003, ¶¶174-181 (affirmatively relying on only Rao and Freund, and simply asserting that “Montemurro’s disclosures are not contrary”). However, neither Rao nor Freund (alone or in combination with Montemurro) disclose or render obvious a system that would selectively allow or deny Internet service activities based on *both* recited classifications.

A. Rao does not disclose selective denial based on a “foreground” classification and based on a classification of “a wireless network to which the device currently connects.”

37. The only discussion of Rao explicitly relied on by Dr. Houh for limitation [1.6]’s recitation of “selectively allow or deny one or more Internet service activities” is Rao’s teaching that certain packets can be discarded during a network disruption, Rao’s teaching that it can “drop” or “accept” packets, and Rao’s teaching that certain packets may be deprioritized while others are “immediately allow[ed].” *See* Ex. 1003, ¶¶184-186.

38. These teachings fall into two categories: Rao’s teachings that certain packets should be prioritized over other packets, and Rao’s teachings that certain packets may be “dropped” or “discarded.” As discussed below, none of Rao’s teachings in either category disclose (or render obvious in the proposed

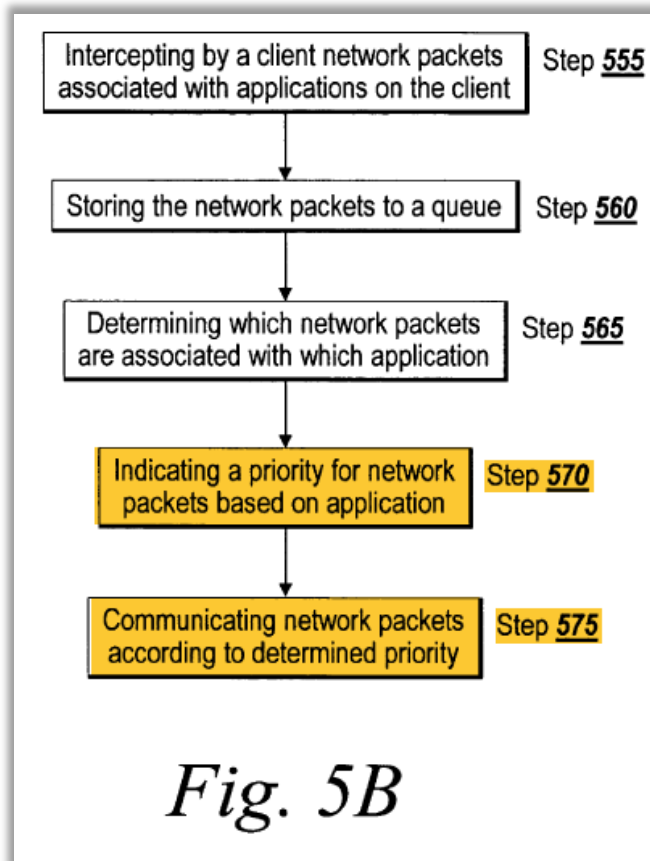
combination) the claimed “selective[] allow[ance] or den[ial]” of service activities based on both of the claimed classifications.

1. Rao’s “deprioritization” of packets cannot constitute selective allowance or denial as the claims require.

39. Dr. Houh relies on Rao’s prioritization scheme as constituting a selective denial of Internet service activities. *See* Ex. 1003, ¶186. Specifically, Dr. Houh asserts that Rao teaches “teaches deprioritizing some packets while immediately allowing others,” and then alleges that “this de-prioritization is at least a temporary *denial*.” *Id.*

40. However, a POSITA would have understood that Rao teaches that by deprioritizing a packet (which may depend at least in part on “whether an application is running in the foreground or the background”—Ex. 1004, ¶182), that packet is placed into a queue of a certain priority, and that packet *will be* transmitted.

41. 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 communicated over the network in step 575:



Rao, FIG. 5B (annotated). 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. 1004, 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).

42. In other words, Rao teaches that the goal of assigning a packet a particular priority (even a low priority) is to ultimately *transmit* the packet. Thus,

Rao's assigning a low priority to a packet does not constitute a selective *denial* of that packet as Dr. Houh asserts.

43. I note that Dr. Houh does not allege that Rao's prioritization scheme involves a complete denial of the packets; he instead alleges that it would constitute "a *temporary* denial because packets are prevented from accessing network resources while higher-priority packets are being transmitted." Ex. 1003, ¶186. As best I can tell, his theory is that if packets are prevented from accessing network resources for any period of time (i.e., temporarily delayed), that temporary delay constitutes a selective decision to "deny" those packets as the claim recites. I disagree with that theory.

44. As an initial matter, a POSITA would not have understood mere *delay* in packet transmission to constitute *denial* of the packet. Under that logic, *all* packets would be denied in any real-world system, because all real-world systems incur some delay between packet formation and packet transmission. Indeed, Rao itself provides an example of this, showing sequential steps between packet formation, packet prioritization, and packet transmission. *See* Ex. 1004, FIG. 5B (first storing "network packets to a queue" in step 560, then determining "a priority for network packets based on application" in step 570, and only then actually "[c]ommunicating [those] network packets according to determined priority" in step 575).

45. To the extent that Dr. Houh’s analysis can be interpreted as implying that “den[ial]” of a packet wouldn’t include *all* transmission delay, but would only include delay caused by placing a packet in a queue while other packets are first transmitted, that would still lead to a result where the overwhelming majority of transmitted packets within a system would be “denied” under his theory. For example, a POSITA would have known that nearly all packets in a queue-based system will need to wait for previous-queued packets to be transmitted. The understanding is that most packets (even actually transmitted packets) would be *denied* is contrary to the understanding of a POSITA, who would have instead understood that packets that are eventually transmitted would be considered to be “allowed” rather than “denied” due to temporary delay. Interpreting delay due to queuing as “denial” is also contrary to the teachings of the ’613 patent, which draws a distinction between “delaying” and “denying.” Ex. 1001, 62:23-25 (discussing a “mechanism for allowing, denying, delaying, and/or otherwise controlling network access”); *see also, e.g., id.*, 68:20-29 (discussing options including “block network access” and “delay network access”); 86:44-41 (control settings including “allow/block, delay, throttle” etc.); 91:6-8 (“[A]n intercepted request can be copied (e.g., to memory) and queued (e.g., delayed or throttled) or dropped (e.g., blocked).”).

46. The fact that queuing or delaying a packet does not constitute *denial* of that packet is confirmed by other of Dr. Houh's opinions. Specifically, in the immediately preceding paragraph, Dr. Houh alleges that a "POSA would have understood that... packets queued and transmitted are '*allowed*.'" Ex. 1003 ¶185 (equating *queuing* of a packet with *allowing* that packet by contending: "Rao 'selectively' *denies* and *allows* [packets] because the policies 'determine which network packets to *queue* and/or *discard*."). This is contrary to Dr. Houh's theory in paragraph 186 of his declaration for Rao's prioritization scheme, in which packets that are queued for transmission are supposedly *denied*.

47. Contrary to Dr. Houh's inconsistent conclusion that the *same* packets in Rao's system would be both allowed *and* denied, a POSITA would understand that so long as a packet is transmitted, that packet has been "allowed" by the system and has not been "denied." A POSITA would have understood that although there may (and indeed would always in practice be) a delay before a packet is ultimately transmitted, that delay would not constitute a denial.

48. It is thus my opinion that Rao's prioritization decisions (in which packets are ultimately transmitted) cannot constitute a decision regarding selective allowance/denial as claimed.

2. Rao’s “discard” or “drop” decisions for packets cannot meet the claim language, even in combination with other references.

49. Rao further has various discussions of dropping or discarding network packets, in addition to its embodiments regarding prioritization (e.g., discussed in Section VI.A.1 above). As discussed below, it is my opinion that none of these teachings of Rao support Dr. Houh’s invalidity theory.

a) Rao’s discarding of certain packets during network disruption does not meet the claim requirements, because there is no “network to which the device currently connects.”

50. Other than Rao’s discussion of packet prioritization discussed above in Section V.A, the only discussion of Rao explicitly relied on by Dr. Houh for the selective allow / deny limitations of [1.5] and [1.6] is Rao’s teaching that certain packets can be discarded *during a network disruption*. See Ex. 1004 ¶[0207]; Ex. 1003, ¶184 (“Rao, for example, teaches that based on its policy, the system may ‘discard network packets’ (internet service activities), particularly during a network disruption, while queuing other packets to be transmitted.”).

51. Dr. Houh is clear that under his theory, selective queuing of a packet constitutes *allowing* the packet, whereas selective *discarding* of the packet constitutes *denying* the packet. Pet. 29 (equating *queuing* of a packet with *allowing* that packet by contending: “Rao ‘selectively’ *denies* and *allows* [packets] because the policies ‘determine which network packets to *queue* and/or *discard*.”).

52. Relevant to this theory, the claims require that the processors be configured to “selectively allow or deny one or more Internet service activities... based on... the classifications” including a “*classification of] a wireless network to which the device **currently** connects in order to communicate data.*” In other words, the decision to selectively deny or allow a packet in the challenged claims must be based, at least in part, on some classification of a **currently connected** network.

53. Notably however, Rao is clear that *during a network disruption*, the device is **not connected** to the relevant network; for instance, Rao explicitly contrasts the “network [being] available” with the occurrence of a “network disruption.” Rao ¶81 (“[T]he network communications are queued during the network disruption and transmitted **once the network is available.**”). A POSITA would have thus understood Rao (consistent with the teachings of the ’613 patent) to disclose that queuing packets “during [a] network disruption” and transmitting those packets “once the network is available” to mean that “network disruption” is an indication that the network is **not** available—i.e., there is no current network connection as the challenged claims require. *See* Ex. 1001, 59:38-44 (stating that a “connection is established” only when “one of the networks is available”).

54. Accordingly, a POSITA would have understood that it 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.

55. Dr. Houh’s reliance on alleged allowance/denial during network disruption (i.e., when there is no connection over which data can be sent) is different than 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). Ex. 1001, claim 1 (reciting processor(s) configured to “classify a wireless *network to which the device currently connects in order to communicate data* for Internet service activities,” and “selectively allow or deny one or more Internet service activities... based on... the classification[.]”).

56. Accordingly a POSITA would understand that, even as modified in combination with other references, Rao’s decision to discard packets during a network disruption (i.e., when there is no available network and thus no “wireless network to which the device currently connects in order to communicate data”)

could not be the result of one or more processors “selectively allow[ing] or deny[ing]... activities... based on... the classifications” which include a classification of “a wireless network to which the device *currently* connects in order to communicate data,” as claim 1 requires. In order for Rao’s discarding of network packets during network disruption to meet this requirement, it would need to be modified to, at least, discard network packets according to the network disruption process during time periods *other than* during network disruption, such that the selective allow/deny decision could happen during an active network connection. However, such an extension of Rao’s “network disruption” teachings is not disclosed by Rao or a modification proposed by Dr. Houh.

b) Rao’s “drop[ping]” of certain “unwanted” packets also does not satisfy the claim requirements because it is not based on any foreground classification.

57. Although Dr. Houh does not explicitly mention Rao’s dropping “unwanted” packets, it does provide a brief citation to that teaching of Rao. *See* Ex. 1003, ¶184 (citing Ex. 1004, ¶¶102-05, and explaining that this portion of Rao describes a “decision to ‘drop’ or ‘accept’ packets”).

58. The *only* cited paragraph of Rao that discusses a decision to “drop or accept... network packets” is Rao at ¶102, which is reproduced in its entirety below:

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. 1004, ¶102.

59. A POSITA would understand the above teaching 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[.]” *Id.* A POSITA would further understand that none of these categories are based in any part on whether an application is running in the foreground (as limitation [1.6] would require).

60. First, Rao teaches that packets may be discarded “depending on their content” (e.g., “routing information”). *Id.* But there is no teaching in Rao that the “content” of a packet would indicate whether the packet was issued by an

application running in the background. 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. Because the foreground or background status of an application in Rao does not affect the content of packets issued by that application, a decision of whether or not to drop packets in this scenario could not constitute selectively allowing or denying Internet service activity based at least in part on a foreground classification as required by limitation [1.6].

61. 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. 1004, ¶102. But again, neither what protocol is used for communication nor the destination address of a given packet depends on whether the application that issued the packet was running in the background or foreground. For instance, a POSITA would understand that applications can use the same protocols and destination addresses when running in either the foreground or the background. Accordingly, a decision of whether to drop or accept packets based on a specified protocol or destination address cannot constitute the allowance or denial based in part on a foreground classification as the claims require, because

the specified protocol or destination address wouldn't relate to any foreground classification.

62. More generally, there is no disclosure that packets would **ever** be considered “unwanted packets” within the context of the embodiment of Rao’s ¶102 based on a determination that the issuing application was not classified as “foreground.” While Rao *does* teach that packets generated by background applications may be given lower priority than packets generated by foreground applications (*see, e.g.*, Ex. 1004, ¶¶[0046], [0189]), this is in the context of assigning foreground packets a higher queuing priority than background packets. 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).

63. 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. 1004, ¶194), and Rao never suggests that its system is configured to **drop** or **discard** low-priority packets (i.e., packets that have been assigned to a low-priority queue) when there is no network disruption.

c) Rao’s discarding of packets due to “network factors” is not relied upon by Dr. Houh, and also does not satisfy the claim requirements.

64. Although Dr. Houh does not rely on it as allegedly disclosing selective allowance/denial, there is one more instance where Rao teaches discarding packets, specifically 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. 1004, ¶[0195]. This portion of Rao would not have supported Dr. Houh’s invalidity theory, however, because it is inconsistent with that theory.

65. Specifically, Dr. Houh makes clear that under his Rao-based invalidity theory, a POSITA would have believed it advantageous to “prevent background activity from being processed ahead of foreground activity” (Ex. 1003 ¶151); in other words, it’s his opinion that a POSITA implementing Rao would have assigned *background* activities a *lower* priority than foreground activities. *See also* Ex. 1003, ¶277 (alleging a POSITA would have found it obvious for a VOIP app to have its priority downgraded from “high priority” to “lowest priority” when its classification changes from a foreground application to a background application).

66. However, Rao teaches that in the case of network congestion, “**higher priority**” packets may be discarded over lower-priority packets. Ex. 1004, ¶195 (“[T]he remote access client 120 may throttle back or not communicate network

packets related to other network[] factors, such as congestion, even though the network packets may have a higher priority than other network packets in a queue 540a-540n.”). A POSITA would thus understand that the decision to “not communicate network packets” under these circumstances is made *independently* of Rao’s prioritization policy.

B. 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.

67. As discussed above, it is my opinion that 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 in part on a classification of a wireless network type to which the device *currently* connects).

68. Dr. Houh also relies on Freund for the selective allowance/denial based on foreground classification. *See* Ex. 1003, ¶179 (relying on Freund’s “teach[ing] 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” in order to “facilitate[] rules limiting an employee’s ‘counterproductive Web browsing.’”) (quoting Ex. 1007, 10:16-43).

69. However, in my opinion, Dr. Houh fails to explain *why* a POSITA 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,” in light of the contradictory approaches of those two references wherein Rao favors foreground activity, and Freund favors background activity.

1. The teachings of Rao and Freund regarding background and foreground classifications are contradictory.

70. As Dr. Houh acknowledges, Rao teaches that in prioritization decisions, foreground activity should be *prioritized* over background activity. *See* Ex. 1003 ¶151 (discussing Rao’s explanation of benefits of “prevent[ing] background activity from being processed ahead of foreground activity”). For instance, in Dr. Houh’s claim 16 analysis, he contends that “application of the policy” would give an application a high priority when that application is classified as interacting in the foreground, but that the same application would “receive lowest priority” when it is no longer classified as in the foreground. Ex. 1003, ¶277.

71. In contrast, Freund teaches the opposite—that foreground activity should be *disfavored* relative to background activity. The sole mention of

“foreground” in Freund (and the only discussion Dr. Houh relies on in Freund regarding foreground and background activity) teaches:

3. Monitoring and regulating time spent on the Internet

Perhaps the aspect of Internet access most important to productivity of an organization is the ability to monitor and regulate the amount of time employees spend on the Internet. Although the Internet is an increasingly important business tool, it also poses a temptation to employees for use to pursue their own private interests while seemingly working.

The Internet access monitoring system of the present invention addresses this problem by allowing an organization to monitor and control the time its employees spend on the Internet. The actual monitoring can be done in a variety of ways, including monitoring the time spend by an employee to actively interact with the Internet, monitoring the total time applications access the Internet, and/or mon[i]toring the total time particular users/workstations access the Internet. The option of employing different approaches is an important one, as no one approach will likely answer all monitoring needs of an organization.

Consider, for example, the monitoring of time spent by an employee for "actively" interacting with the Internet. . . . Here, 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. The Internet access time of a

user for a given day, therefore, is not necessarily equivalent to the time the user actively spends browsing Web sites. Conventional technologies cannot distinguish between this "active" versus "passive" access and therefore cannot present an accurate picture of the actual time the user has spent on on-line activities. Accordingly, it is desirable to monitor the time an employee spends "actively" interacting with the Internet, so that management goals of control[ing] counterproductive Web browsing can be realized. *In the currently-preferred embodiment, the system may be configured such that **access to the Internet which occurs in the background is not counted against the per-day time limit imposed on users.***

Ex. 1007, 9:64-10:43.

72. In other words, Freund teaches that a central authority within an organization will specify certain restrictions on active user Internet access. The goal of this restriction is not to *improve* user experience (as in Rao); rather, the goal is to improve “productivity of an organization” by *preventing* users from “pursu[ing] their own private interests” in the workplace.

73. Moreover, Freund teaches that its system (contrary to Rao) is *restrictive* of foreground activity relative to background activity, because “background” Internet usage “is *not* counted against the per-day time limit imposed on users,” such that only “active” (e.g., “foreground”) activity is restricted. Ex. 1007, 10:17-40. Dr. Houh does not address this contradictory

treatment of foreground activity, much less explain why a POSITA would have been motivated to pursue this contradictory treatment of that activity.

2. Dr. Houh’s alleged motivations would not have caused a POSITA to combine the teachings of Rao with Freund in the proposed contradictory manner.

74. Dr. Houh alleges several reasons why a POSITA would supposedly have been motivated to combine Rao and Freund. Even if these motivations could be motivations to combine Rao and Freund in *some* manner, that is not sufficient; a POSITA would need to be motivated to combine Rao with Freund in the *specific* manner proposed by Dr. Houh. In my opinion, Dr. Houh’s alleged motivations And none of Dr. Houh’s motivations explain why a POSITA would have been motivated to combine their teachings regarding foreground/background classifications as suggested.

75. First, Dr. Houh alleges that “given *Freund’s and Rao’s similarities*, in my opinion, a POSA would have been motivated to implement Freund’s teachings in Rao.” Ex. 1003, ¶119. However, the specific teachings relied upon regarding treatment of foreground and background activity are not similar at all. To the contrary, a POSITA would have seen Rao’s *prioritization* of foreground activity, and Freund’s selective *restriction* of foreground activity, as fundamentally *contradictory*, because the former provides special treatment for foreground activity, whereas the latter provides special treatment for background activity.

76. Second, Dr. Houh alleges that “a POSA would have been motivated to incorporate Freund’s teachings *to improve the combined system’s user friendliness* (e.g., in view of Freund’s detailed ‘rules wizard’ for policy configuration and its policy options)....” Ex. 1003, ¶120. Presumably, Dr. Houh is referring to Freund’s “user friendliness” for policy configuration here, because Freund’s specific treatment of background/foreground activity is to *reduce* user friendliness by imposing restrictions on how users at work can use the system. To the extent this purported motivation might potentially speak to a motivation to use some sort of “rules wizard,” it does not provide a motivation to implement Freund’s restrictions on foreground Internet access within Rao (which as noted above, a POSITA would recognize as *decreasing* user friendliness in order to provide a central authority with more control over user behavior).

77. Third, Dr. Houh alleges that “a POSA would have been motivated to incorporate Freund’s teachings (e.g., in view of Freund’s detailed ‘rules wizard’...) ... to implement the background/foreground prioritization expressly suggested by Rao.” Ex. 1003, ¶120. But using Freund’s teachings “*to implement the [[foreground prioritization suggested by Rao]*” would not involve favoring *background* activity by imposing time limits on *foreground* activity as taught by Freund. In particular, Rao does not teach prioritizing background activity over foreground activity, so “implement[ing] the... prioritization suggested by Rao”

would simply prioritize *foreground* activity over background activity, contrary to Freund's teachings.

78. Fourth, Dr. Houh alleges that "the proposed combination would have had particular benefits in corporate settings where an employer may wish to monitor (and impose limits on) employees' device use." Ex. 1003, ¶121. However, this desire to "impose limits on" a user's device usage is, again, inconsistent with Dr. Houh's own motivation expressed above of "*improv[ing]* the combined system's user friendliness." Ex. 1003, ¶120. Furthermore, a desire to impose limits on employee' device usage speaks only to the benefits of implementing *Freund's* approach in a corporate setting. It says nothing of why a POSITA would combine *Rao with Freund* in a corporate setting, or why a POSITA would have maintained Rao's disclosures that actually *prioritize* foreground Internet activity (which Freund suggests should be *restricted* because it is "counterproductive") in such a combination.

79. In my opinion, Dr. Houh's alleged motivations do not explain why a POSITA would supposedly have combined Rao's teachings (wherein *foreground* activity should be prioritized over background activity) with Freund's teachings that *background* activity should be prioritized by exempting that activity from usage restrictions designed to "limit[] an employee's 'counterproductive Web browsing.'" Pet. 27 (quoting Ex. 1007, 10:16-43). In my opinion, if a POSITA

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.