

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

IPR2024-01051
Patent 8,639,811

**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 20, 2024, at Mountain View, California.



Erik de la Iglesia

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	BACKGROUND AND QUALIFICATIONS	2
III.	LEGAL PRINCIPLES	6
A.	Claim Construction	6
B.	Burden of Proof	6
C.	Anticipation	6
D.	Obviousness	7
IV.	PERSON OF ORDINARY SKILL IN THE ART	8
V.	OVERVIEW OF THE '811 PATENT	9
VI.	CLAIM CONSTRUCTION.....	12
VII.	NEITHER THE PETITION NOR DR. MCDANIEL SET FORTH A THEORY UNDER WHICH CLAIM 4 WOULD HAVE BEEN OBVIOUS.	12
A.	Overview of the Petition's claim 4 theory	13
B.	The Petition's claim 4 theory fails.	14
C.	I also disagree with Dr. McDaniel's conclusions.	17

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. 8,639,811 (“the ’811 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 ’811 patent. I have no personal interest in the outcome of the case.

5. In preparing this Declaration, I have reviewed and considered the ’811 patent, the ’811 patent’s prosecution history, the Petition and prior art references submitted with the Petition, the declaration submitted by Dr. McDaniel 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 '811 patent.

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. McDaniel proposes that a POSITA in the field of the '811 patent “would have been someone with (1) at least a bachelor’s degree in computer science, computer engineering, electrical engineering, or a related field, and (2) at least two years of industry experience in wireless communications security. Additional advanced education could compensate for a deficiency in work experience, and vice-versa.” Ex. 1003, ¶24. 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 '811 patent.

V. Overview of the '811 Patent

28. Claim 4 of the '811 patent is generally directed to applying a policy based on user input to “restrict[] or prevent[] a first access to the first wireless network by the first application when the first application is executing,” wherein that restriction or prevention includes “preventing communication associated with the first application over the first wireless network *when the first application runs as a background process.*”¹ Ex. 1001, 163:52-67, 164:12-17. Claims 1 and 4 are reproduced below.

[1.1] A wireless device, comprising:

[1.2] one or more modems for enabling the wireless device to communicate over at least a first wireless network;

[1.3] a user interface;

[1.4] memory configured to store a control policy associated with a first application on the wireless device, the first application at least enabling the wireless device to access at least a first data service over the first wireless network; and

¹ All emphases in this declaration are my own unless otherwise indicated.

[1.5] one or more processors configured to execute one or more machine-executable instructions that, when executed by the one or more processors, cause the one or more processors to:

[1.6] assist in obtaining a user input through the user interface,

[1.7a] determine at least an aspect of the control policy based on the user input,

[1.7b] the at least an aspect of the control policy for at least assisting in restricting or preventing a first access to the first wireless network by the first application when the first application is executing,

[1.7c] the at least an aspect of the control policy enabling a first control of the first access to the first wireless network by the first application when the first application is executing that differs from a second control of a second access to the first wireless network by a second application on the wireless device, and

[1.8] apply the control policy, thereby at least assisting in restricting or preventing the first access to the first wireless network by the first application when the first application is executing.

...

[4] The wireless device recited in claim 1, wherein restricting or preventing the first access to the first wireless network by the first application comprises preventing communication associated with the

first application over the first wireless network when the first application runs as a background process.

Ex. 1001, 163:39-67, 164:12-17.

29. As explained by the '811 patent, this solution can be implemented through a “policy implementation agent” that can apply “policy rules,” including a “firewall function” which a POSITA would have understood would prevent communications associated with certain running applications in their entirety:

In some embodiments, a policy implementation agent 1690 implements traffic shaping and QoS policy rules for the device 100. In some embodiments, the policy implementation agent 1690 provides a firewall function.

Ex. 1001, 51:40-43.

30. Alternatively or in addition, policies can be applied through “application layer based traffic monitoring and shaping,” which can perform functions “similar to the functions described for the policy implementation agent, such as pass, **block**, buffer, delay, burst, etc.” Ex. 1001, 56:11-34. The queues can be “associated with one or more additional classifications for that application.” *Id.*, 56:11-25. Accordingly, the claimed invention allows the system to not merely deprioritize network traffic sent by an application classified as running in the background, but to prevent all access of that background application to the wireless modem depending on the applicable policies.

VI. Claim Construction

31. Dr. McDaniel does not propose any claim terms for construction. For purposes of my analysis, I apply the plain and ordinary meaning of the claim terms in view of the intrinsic record, and do not believe any terms need an explicit construction.

VII. Neither the Petition nor Dr. McDaniel set forth a theory under which claim 4 would have been obvious.

32. In my analysis below, I evaluate theories presented by both the Petition and Dr. McDaniel. Typically in authoring my opinions, I respond primarily to the opinions of an expert rather than to a legal brief authored by lawyers. However, I have reviewed both the Petition and Dr. McDaniel's declaration, and the differences between the theories presented in both documents are significant enough that I believe it is appropriate for me to respond to both documents.

33. Claim 4 depends from claim 1, and further recites "preventing communication associated with the first application... when the first application runs as a background process." The Petition and Dr. McDaniel do not allege that Rao (Ex. 1005) alone discloses or renders obvious this limitation. Instead, they propose combining Rao with Jones (Ex. 1006) to arrive at a combined "Rao-Jones device (RJD)" which would "first determine[] whether the transfer is allowed (per Jones), and if so, assign[] the corresponding packets to a priority-based queue (per

Rao).” Pet. 35. The Petition alleges that claim 4 would have been obvious in view of Rao and Jones. *See* Pet. 38 (“RJD renders [claim 4] obvious.”).

34. However, in my opinion neither the Petition nor Dr. McDaniel’s declaration establishes that Rao in combination with Jones actually would render obvious claim 4.

A. Overview of the Petition’s claim 4 theory

35. The Petition contends that “RJD evaluates policies relating to factors including ‘whether an application is running in the foreground or the background,’” to “determin[e] if the transfer is allowed or prohibited.” Pet. 38-39. On this basis the Petition concludes that “RJD prevents network access when the application runs as a background process.” Pet. 39.

36. The Petition identifies two examples of what the “first application” can be in the context of its claim 4 combination a “video streaming” or “backup” application. Pet. 38 (“The first application can be a non-interactive application such as video streaming (Rao) or backup (Jones).”). However, the Petition only addresses the latter of these scenarios (Jones’ “backup” application), which discussion I have reproduced below:

For example, Jones teaches that “data protection software ... may execute in the background to perform data backups” and the “[b]ackup frequency ... may depend on ... enterprise policies.” SAMSUNG-1006, 3:45-51. A POSITA would have recognized that preventing network

access for backup processes (in the background) leaves additional bandwidth for other applications, avoiding cases where background packets are processed in lieu of or “processed ahead of the real-time network packets,” as described in Rao. SAMSUNG-1005, [0003]; SAMSUNG-1003, ¶¶[316]-[317].

Pet. 39.

37. In this regard, as best I can tell, the Petition’s theory is that configuring a backup process to only execute under certain conditions constitutes *preventing* communications associated with the backup process at other times.

B. The Petition’s claim 4 theory fails.

38. I disagree with the Petition’s theory outlined above for at least two reasons, discussed in turn below.

39. **First**, configuring a backup process to execute at certain times according to various factors does not constitute “preventing communication associated with the first application.” To the contrary, if the backup process isn’t configured to execute, there would be no “communication associated with [it]” that could be prevented. For example, it would not be attempting to perform an “access to the first wireless network” as recited by claim 1, or otherwise attempting to perform any network communications when it isn’t configured to run. A POSITA would have understood that in order to prevent a communication, there must be a communication to prevent, such as, for example, a data packet. The Petition does

not explain how, in its proposed example, there would be any “communication[s] associated with the first application over the first wireless network when the first application runs as a background process” to prevent at all, because “communication[s] associated with” a backup application would only occur when the backup application is actually attempting to send or receive data, and it would not be attempting to do so other than in compliance with the enterprise policies that determine when the backup process should execute.

40. Put simply, at times when the data backup process is **not** configured to execute, there would simply be no “communication associated with” the backup process to prevent, nor would there be any attempted “access to the first wireless network” as recited by claims 1 and 4 that could be restricted or prevented. This is in contrast to the ’811 patent, which teaches that communication prevention capabilities can be implemented, for example, through a “policy implementation agent 1690[’s] firewall function” (Ex. 1001, 51:40-43) and/or through “application layer based traffic and monitoring and shaping” that provide functionalities such as “pass” or “block” (*Id.* 56:11-34). A POSITA would have understood that these policies prevent actual communications associated with applications, such as, for example, packets. *See id.* 103:54-58 (explaining that the policies are applicable to “pass/block packet”).

41. **Second**, under the Petition’s theory, there could be no prevention of “communication associated with the first application *when the first application runs* as a background process.” Ex. 1001, 164:12-17. A POSITA would understand that a niche application such as a data backup process would only need to run when it is actually performing network communications. By way of analogy, the process used to update the Windows operating system only runs when it needs to perform an operating system update; it doesn’t run even when there is nothing to update. The Petition provides no evidence or reasoning that the backup application would be running or executing even when it is *not* supposed to be communicating over the network. Indeed, the portion of Jones relied on by the Petition itself states that “data protection software... may *execute* in the background *to perform data backups*” (Ex. 1006, 3:45-47), and does not provide any reason *other than* network communications (such as data backups) for the data protection software to be executing.

42. A POSITA would have understood that the activity of backing up data occurs in the background, but would not have understood that data protection software would need to continue to run after it was finished performing network communications such as backing up data. In my opinion, a POSITA would have avoided implementing the backup process to be constantly running in the background even when it was not performing network communication tasks,

because having that process continue to run would unnecessarily consume memory and processing resources. Accordingly, this is a separate reason why the Petition's theory does not satisfy "prevent[ing] communication associated with the first application when the first application *runs*."

43. Again, this is in contrast to the '811's operation explained above, wherein the '811 patent teaches that communication prevention capabilities can be implemented, for example, through a "policy implementation agent 1690[']s] firewall function" (Ex. 1001, 51:40-43) and/or through "application layer based traffic and monitoring and shaping" that provide functionalities such as "pass" or "block" (*Id.* 56:11-34). A POSITA would have understood that these policies prevent actual communications associated with applications, such as, for example, packets. *See id.* 103:54-58 (explaining that the policies are applicable to "pass/block packet"). And in order for there to be a communication associated with the application, a POSITA would understand that the application would need to be *running*.

C. I also disagree with Dr. McDaniel's conclusions.

44. As noted above, I disagree with the Petition's claim 4 theory. I separately address Dr. McDaniel's theory in this section.

45. Regarding paragraph 315 of Dr. McDaniel's declaration, Dr. McDaniel contends that a POSITA would have been motivated to "prevent[]

network access when the application runs as a background process” because “preserving bandwidth for foreground application[s] by disallowing traffic of background application[s] is preferred”:

For example, for example [sic], RJD uses foreground/background conditions of Rao, and disallows network traffic of background traffic using the action (prohibit transfer) of Jones. *A POSITA would have recognized that* foreground applications are more likely to have user attention, and therefore preserving bandwidth for foreground application by *disallowing traffic of background application is preferred. Thus, RJD prevents network access when the application runs as a background process.*

Ex. 1003, ¶315.

46. However, Dr. McDaniel presents no evidence that “prevent[ing] network access when the application runs as a background process” would have been obvious to a POSITA, other than what appear to be his own unsupported assertions in that regard. I don’t doubt that Dr. McDaniel, *with the benefit of hindsight of the ’811 patent*, finds preventing network access for background processes to be obvious, but anyone reading the ’811 patent would readily understand that concept. I understand that the relevant inquiry is not what is obvious in view of the ’811 patent, but what would have been obvious to a POSITA before the ’811 patent’s priority. And in this regard, Dr. McDaniel

presents no evidence (such as any teaching in the prior art that even allegedly discloses as much).

47. Furthermore, Dr. McDaniel’s alleged motivation to pursue the claim language seeks to solve problems that, in my opinion, a POSITA would have understood Rao to already solve. For instance, Rao already teaches that bandwidth for foreground applications can be preserved by assigning packets of those applications a higher priority than background packets. *See, e.g.*, Ex. 1005 ¶189 (“[T]he agent 326 may use characteristics of the application 338a-338n, such as running in the foreground or background, to indicate priority for a network packet of the application.”); *id.* ¶3 (expressing a desire to avoid background packets from being transmitted ahead of foreground packets). And Dr. McDaniel provides no evidence from either Rao or Jones (or any other reference) that describes preventing communication by an application that would in any way relate to whether that application running in the background. For instance, Jones does not satisfy the claim language for the reasons set forth above with regard to the Petition’s theory. And Dr. McDaniel does not allege that Rao itself prevents communications on behalf of background applications. Indeed, he appears to acknowledge that Rao ***does not*** do so, by conceding that assigning lower priority merely “restrict[s]” (rather than prevents) “network access.” *See* Ex. 1003, ¶316

(discussing “restricting network access for the backup process... by assigning its packets lower priority”).

48. Accordingly, I disagree with Dr. McDaniel’s conclusion that “prevent[ing] network access when the application runs as a background process” (Ex. 1003, ¶315) would have been obvious in view of Rao and Jones; the fact that *neither* Rao nor Jones discloses as much is a strong indication that a POSITA would not have viewed their combination to suggest doing so.

49. Regarding Dr. McDaniel’s paragraph 316, he discusses the example of Jones’ “data protection software” which “execute[s] in the background to perform data backups” that was addressed in the Petition. Ex. 1003, ¶316; *see also* Pet. 39 (addressing this same example). Dr. McDaniel appears to propose that in the combined RJD system, a POSITA would have assigned the backup process’s “packets lower priority” such that its “network access” would be “restrict[ed].” Ex. 1003, ¶316. This is notably a different theory than presented by the Petition, which did not mention assigning Jones’ data backup packets a low priority to “restrict” those communications, and instead alleged the combined system would “prevent” communications altogether. Pet. 39.

50. I disagree with Dr. McDaniel’s theory for additional reasons. In particular, a POSITA would have understood assigning packets a lower priority in Rao’s queues would not “*prevent*” communication associated with the first

application” as required by claim 4, because Rao discloses that packets are assigned to queues for the purpose of being eventually transmitted (such that the communication is not *prevented*). I don’t understand Dr. McDaniel to allege anything different; instead, he asserts that assigning packets to a low priority would constitute “restricting” access (Ex. 1003, ¶316), which is plainly insufficient as claims 1 and 4 draw a distinction between “restricting” and “preventing,” such that they should not be understood to mean the same thing. *See* Ex. 1001, 163:64-65 (“assisting in *restricting* or *preventing* the first access”); *id.* 164:12-17 (“wherein *restricting* or *preventing* the first access... comprises...”). It’s not clear why he relies on a theory that he does not contend satisfies the “preventing” claim language, but I agree with him that assigning packets a low priority would at most “restrict” those packets rather than “prevent” them from being communicated.

51. Regarding paragraph 317 of Dr. McDaniel’s declaration, he provides what appears to be a hypothetical not discussed in either Rao or Jones, in which the combined system would supposedly “prevent[a] video stream [in the background] from competing for device resources with [a] video call [in the foreground].” Dr. McDaniel’s paragraph 317 is reproduced below:

In a second example, if a user is streaming a video, then opens a video call (which moves the streaming video to the background), ***a POSITA would have recognized that it is preferable for RJD to block the video stream*** to prevent the video stream from competing for device

resources with the video call (which is an interactive application). Since video streams contain large amounts of data (as described in §IX.E), if RJD used priority queuing to hold the data instead of blocking it, RJD would expend considerable resources to store the data in the queue, especially if the video call lasted for more than a few seconds. Such an approach quickly becomes impractical. Therefore, it is preferable for RJD to block the transmission rather than expend device resources to queue what can be a large amount of data.

Ex. 1003, ¶317. I disagree with Dr. McDaniel’s opinion in this regard for several reasons.

52. As an initial matter, Dr. McDaniel’s opinion is not supported by any *evidence* of what a POSITA at the time would have recognized—it just rests on his own *assertion* that a “POSITA would have recognized that it is preferable” for the combined system to block the video stream when it moves from the foreground to the background. Ex. 1003, ¶317. His analysis contains no citations to any prior art systems actually implementing such a solution, and neither Rao nor Jones are alleged to actually prevent communication from background applications to free up device resources. Again, I don’t doubt that the requirements of claim 4 of the ’811 Patent are obvious to Dr. McDaniel—after all, he has already read claim 4 and the associated teachings in the ’811 patent’s specification. Given that we are discussing a priority date of approximately 15 years ago, it is difficult to accept a

hindsight assertion that the claimed approach have been “obvious” without looking to the historical evidence, and I am aware of no historical evidence (e.g., prior art or other evidence of what POSITAs at the time were doing or thinking) that would suggest claim 4 to be obvious.

53. I also understand Dr. McDaniel’s testimony—that the combination of Rao and Jones would be configured to implement a feature not taught by either Rao or Jones (i.e., blocking a video stream when it moves from the foreground to the background)—to be contrary to the Petition’s representations of how the proposed combination would work. Specifically, the Petition contends that “the components of RJD each operate as they would in isolation.” Pet. 38. But neither Rao nor Jones discloses blocking a video stream when it moves to the background, and Dr. McDaniel does not explain how their combination could include this entirely new feature while still being consistent with the Petition’s allegation that the components of Rao and Jones would simply “operate as they would in isolation.” Pet. 38.

54. I also disagree with the purported motivation for Dr. McDaniel’s proposed new functionality to the alleged RJD system. Specifically, Dr. McDaniel contends that one option to address the video stream would be to use “priority queuing” to assign a lower priority to traffic associated with the video stream. Ex. 1003, ¶17. He asserts that the problem with this approach, however, is that “video

streams contain large amounts of data,” so “if RJD used priority queuing to hold the data instead of blocking it, RJD would expend considerable resources to hold the data in the queue.” *Id.* On that basis, he concludes that a POSITA would have been strongly motivated to simply **block** the data, because priority queuing would be “impractical.” *Id.*

55. I strongly disagree with Dr. McDaniel’s analysis in this regard. Specifically, he ignores the fact that Rao’s priority queuing in this context would be applicable to **outbound** network packets (i.e., packets that have yet to be communicated), not **inbound** network packets (i.e., packets that have already been communicated) in this context. *See, e.g.*, Ex. 1005, FIG. 5B (showing first “[s]toring the network packets to a queue” in step 560 before “[c]ommunicating network packets according to determined priority” in step 575”); *id.* ¶184 (“[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.”).

56. A POSITA have understood that assigning low priority to **inbound** network packets as a means of managing usage of limited network resources would not make sense in the context of what Dr. McDaniel is proposing. Specifically, in order to place any inbound packets in a queue on Rao’s device, those packets would necessarily *already* have been received by that device, and the network

resources required to receive those packets would have *already* been consumed. So even though Dr. McDaniel is proposing that the only alternative to blocking is to queue *already-received* packets, a POSITA would have understood that queuing *after* reception would make no sense to manage network resource consumption.

57. Instead, a POSITA would have recognized that because Rao's priority queuing is applicable to *outbound* packets, Rao's priority queuing would work very effectively and efficiently to restrict network consumption by simply deprioritizing the *outbound* network traffic from the video streaming application. For instance, if a POSITA would have recognized that a video streaming application would only need to transmit a relatively small amount of outbound data, limited to packets necessary to keep the data connection open and to request more content from the content server providing the video stream. (A content server does not just continuously send unlimited data without receiving communications requesting more data from the device receiving the stream or at least confirmation that receipt has occurred; such an approach would be extremely wasteful and even unstable in the event of, e.g., a network disconnection of the streaming device.) As such, a POSITA would have recognized that Rao's priority queuing system would simply queue the video streaming application's *outbound* requests for additional content from the content server, which would require minimal resources. This would not *prevent* the video application from communicating, and would instead

assign a lower priority to those communications to ensure that the higher priority video call would have sufficient network resources. This would in turn limit (but not categorically prevent) the *inbound* video traffic, since the inbound traffic would be limited to whatever the streaming application requested from the content server.

58. Accordingly, “if a user is streaming a video” in the RJD combination, there would be no reason to “expend considerable resources to store the [large amounts of video] data in the queue” (Ex. 1003, ¶317) under Rao’s priority queuing approach. Instead, Rao’s priority queuing approach would avoid precisely that problem.

59. The above approach would also not be “impractical” at all as Dr. McDaniel suggests. Ex. 1003, ¶317. For instance, it would not involve queuing any video data, and would instead only need to queue outbound control packets requesting additional video data from the content server. Indeed, Dr. McDaniel himself elsewhere opined that assigning packets from a video streaming application that has switched from the foreground to the background would not only be a workable solution, but would have been an *obvious* one. *See* Ex. 1003, ¶¶277-278 (Dr. McDaniel alleging that a POSITA would have “found it obvious to... assign[] packets from the first application (e.g., video streaming) when it is

running as a background application to lower-priority queues, thus restricting its communication”).

60. Accordingly, Dr. McDaniel’s sole motivation for his “second example” is not based on the analysis a POSITA would have engaged in; it’s instead based on a misunderstanding of how Rao’s prioritization queues would operate in practice as applied to a video streaming application that is moved to the background. In my opinion, a POSITA thinking about and considering how to implement Rao in any sensible manner would not have recognized any problem with Rao’s priority queuing approach in this regard, and certainly would not have believed, as Dr. McDaniel asserts, that such a queuing system would need to “expend considerable resources” to store large amounts of incoming video data

61. In summary, I disagree with Dr. McDaniel’s opinions regarding claim 4. He proposes a solution (preventing network access to applications when they enter the background) that is not taught by either Rao or Jones, and unsupported by his purported motivations for doing so.