

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,
VERIZON CORPORATE SERVICES GROUP INC.,
T-MOBILE USA, INC., AT&T SERVICES, INC.,
AT&T MOBILITY LLC, and AT&T CORP.,
Petitioners,
v.

HEADWATER PARTNERS I LLC,
Patent Owner.

Case No.: IPR2024-00809
Patent 9,198,042 B2

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

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 July 25, 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. 9,198,042 (“the ’042 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 ’042 patent. I have no personal interest in the outcome of the case.

5. In preparing this declaration, I have reviewed and considered the ’042 patent, the ’042 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 2,850 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 '042 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. The Mobile and Handheld Products Group also defined and implemented settings and policies for operations and security of devices.

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. In network environments, including mixed wired and wireless environments, Reconnex technology served to audit and enforce policy settings for security and operations control and identification and analysis of communication streams.

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. 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

16. 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.

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

18. 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

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

C. Anticipation

20. 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.

21. 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* include the undisclosed claim element.

D. Obviousness

22. 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.

23. 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.

24. 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.

25. 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. Overview of the '042 Patent

26. The challenged claims of the '042 Patent (claims 1-18) are directed at a high level to a provider of a network data service (such as a carrier service providing data via an access network) determining whether a particular service policy setting associated with a service profile for the network data service needs to be modified, and sending configuration information to assist in modifying or allowing modifications to the particular service policy setting. *See* Ex. 1001 ('042 patent) at claim 1; *id.* at 1:45-2:3 (“Background of the Invention” discussing the

problems to be solved as relating to providers of service on access networks, which “networks are pressed for user capacity”).

27. Claim 1 is the sole independent claim, and recites:

1. A method comprising:

receiving, over a service control link, a report from a wireless end-user device, the report comprising information about a device service state;

determining, based on the report, that a particular service policy setting of the wireless end-user device needs to be modified, the particular service policy setting being stored in a protected partition of the wireless end-user device, the protected partition configured to deter or prevent unauthorized modifications to the particular service policy setting, the particular service policy setting being associated with a service profile that provides for access by the wireless end-user device to a network data service over a wireless access network, the particular service policy setting configured to assist in controlling one or more communications associated with the wireless end-user device over the wireless access network; and

is in response to determining that the particular service policy setting needs to be modified, sending configuration information to the wireless end-user device over the service control link, the configuration information configured to assist in modifying or allowing modifications to the particular service policy setting.

'042 patent (Ex. 1001) at claim 1.

28. By allowing the network data service provider to update a user device's service policy settings, the network data service provider (e.g., the provider of an access network) is able to better control how the user device makes use of network data service, and can better avoid situations where “very high bandwidth applications and content... quickly consume the available capacity and degrade overall network service experience.” *See* Ex. 100 at 1:45-2:3.

29. I note that Dr. Houh alleges that “[t]he ’042 patent does not identify any specific problem that it seeks to solve nor does it characterize anything within its disclosure as [a] solution.” Ex. 1003 ¶34. In my view, this represents a fundamental misunderstanding of the ’042 patent. For example, the ’042 patent (including in portions cited by Dr. Houh himself) states that “With the advent of many mass market digital communications, applications, and content distribution, many access networks such as wireless networks, cable networks, and DSL (Digital Subscriber Line) networks are pressed for user capacity.” Ex. 1001 at 1:47-55; *id.* at 1:55-1:61 (explaining that this same problem applies to wireless access networks); *id.* at 1:62-2:3 (explaining that this trend will “negatively impact service provider profits”).

30. In my opinion, a POSITA would readily understand that the bulk of the disclosure of the ’042 patent, as well as claim 1 of the ’042 patent, is aimed at solving these problems by allowing providers of network data service (such as data

services provided by network carriers such as Petitioners T-Mobile, Verizon, and AT&T) to ensure that mobile devices on their networks are configured appropriately (for example, to not unnecessarily consume excess bandwidth that would have negatively impacted profitability) in an efficient and secure manner. *See, e.g.*, Ex. 1001 at 3:47-65 (explaining that embodiments of the invention allow for “service usage policy implementation” including “measur[ing] access and/or service usage on one or more access networks; control[ing] access and/or service usage on one or more access networks,” and “implement[ing] quality of service (QOS) controls”); *id.* at 13:64-14:11 (discussing monitoring network data usage “for the purpose of provisioning the right amount of data bandwidth and traffic priority to the device,” and making “QOS allocation decisions”); *id.* at claim 1 (reciting “determining... that a particular service policy setting of the wireless end-user device needs to be modified,” which setting is “associated with a service profile that provides for access by the wireless end-user device to a network data service over a wireless access network,” and “in response to determining that the particular service policy setting needs to be modified, sending configuration information... configured to assist in modifying or allowing modifications to the particular service policy setting”). A POSITA would understand that by securely allowing modification of the policy settings for the network data service, the network data service provider has much more control over provision over how the

devices use and consume network data, and thus can take measures to alleviate user capacity concerns.

V. Person of Ordinary Skill in the Art

31. Dr. Houh alleges that a person of ordinary skill in the art, as of the priority date of the '042 Patent, “would had a mixture of training and work experience, such as by having a Bachelor’s degree in computer science and two years of experience; or by obtaining a Master’s degree in computer science, but having only one year of experience.” Ex. 1003 at ¶43. For purposes of this declaration only, I adopt Dr. Houh’s proposed level of skill in the art.

VI. Claim Construction

32. I am informed that claim construction is an exercise of interpreting disputed terms, to the extent needed to resolve any controversy between the parties. I do not believe that any terms need express construction, but instead apply the plain and ordinary meaning of each claim term in view of the specification of the '042 Patent.

VII. The Petition fails to identify a “service policy setting... associated with a service profile that provides for access by the wireless end-user device to a network data service over a wireless access network.”

33. The Petition points to unspecified Limont’s “configuration settings” to constitute “service policy setting.” However, the Petition does not explain what specifically Limont’s “configuration settings” entail, or how they constitute the

plain meaning (or *any* construction) of “service policy setting.” For example, while the Petition does state that Limont refers to “configuration settings” as “policy settings,” the Petition does not explain why any of these configuration/policy settings would constitute “*service* policy settings” as required by the claim. See Pet. at 28-31.

34. A POSITA would understand that, in the context of the ’042 patent, “service policy settings” are policy particular to the “network data service” recited in claim 1. A “network data service” is the only specific type of service recited in claim 1, and a POSITA would understand that in referring to a “service policy setting,” the claim is referring to a setting for that particular “network data service.” This is consistent with the claim language, which recites that the “service policy setting being associated with a service profile that provides for access by the wireless end-user device to a network data service over a wireless access network.”

35. Furthermore, a POSITA would understand that the plain and ordinary meaning of “network data service” is a service that provides network data. Because the claim further specifies that the “network data service” is “over a wireless access network,” this “network data service” would be understood to be, for example, a service providing network data, such as a carrier’s provision of wireless Internet, voice, or text data. Examples of this would be a carrier such as AT&T, T-Mobile, Verizon, or Sprint providing subscription data plans for mobile devices.

36. This understanding of a “service policy setting” as a setting for the claimed “network data service” (such as a wireless Internet, voice, or text data service) is supported by the specification of the ’042 patent. For example, the “Background of the Invention” section of the ’042 patent discusses the constraints of “access networks” (Ex. 1001 at 1:45-2:3), which a POSITA would understand to be networks that can provide network data service (such as, e.g., 3G, 4G, 5G, cable, or other types of carrier network service) such that user devices can communicate with other devices via voice, text, or the Internet. The fact that the “service policy settings” relate to plans that provide network data services is further shown by the ’042 patent’s disclosure that in some embodiments, “a policy control server 154 stores policy settings for the various service plans that can be implemented on the device, and communicates the appropriate policy settings the appropriate device DAS agents.” Ex. 1001 at 8:26-30. A POSITA would readily understand that “service plans” refer to plans that provide network data service, such as voice, text, or Internet plans provided by a carrier.

37. Similarly, the specification refers to the fact that there may be “different set[s] of DAS service policies corresponding to the different types of access networks supported,” which a POSITA would understand correspond to access networks controlled by different network data service providers. See Ex. 1001 at 11:66-12:7. In other words, the service policy relates to the provision of a

particular network data service over an access network (rather than some service, like email, which merely makes use of a network data service provided by a carrier but does not itself provide network data service).

38. The fact that “service” in this context means network data service more specifically is further confirmed by the fact that the specification discusses “access network service usage” as referring to carrier network usage or private network service usage (such as MVNO or enterprise network services), which a POSITA would understand refer to networks that provide network data service within the understanding I have set forth above. *See, e.g.*, <https://www.gartner.com/en/information-technology/glossary/mvno-mobile-virtual-network-operator> (referring to “MVNO” or “Mobile Virtual Network Operator” as a company that “sells mobile services under its brand name using the network of a licensed mobile operator”)¹; <https://www.vmware.com/topics/glossary/content/enterprise-networking.html> (“An enterprise network consists of physical and virtual networks and protocols that

¹ MVNO brands in the United states include Cricket Wireless, TracFone Wireless, and Metro by T-Mobile. *See* https://en.wikipedia.org/wiki/Mobile_virtual_network_operator. A more detailed listing of the types of network data services provided by MVNOs is shown at https://en.wikipedia.org/wiki/List_of_mobile_virtual_network_operators_in_the_United_States, and includes “phone service” “modem service” and “data” (which is referring more specifically to Internet data as opposed to phone or text data).

serve the dual purpose of connecting all users and systems on a local area network (LAN) to applications in the data center and cloud as well as facilitating access to network data and analytics.”).

39. The Petition points only to email and web page servers as allegedly providing a “network data service.” See Pet. at 43-44 (referring to Limont’s “electronic mail server” or a server that “transfer[s] data (*e.g.*, Web pages) to mobile device 101” as constituting a server providing a “network data service”). Petitioner’s expert provides the same allegation, alleging that “Limont’s policies can be specific to different services’ (such as email and web pages) data.” Ex. 1003 ¶ 458; *see also id.* ¶ 459 (“email is one type of specific data service for which policies are evaluated”); *id.* 461 (alleging that “Limont teaches policies that are specific to a ‘network data service’ in the form of an HTTP web data service” (i.e., web pages maintained by a web server)).

40. However, a POSITA would understand that hosting an email or web page server is not providing a “**network data service**,” because they are not providing **network data**. As noted above, a POSITA would have understood “network data service” to refer specifically to provision of a service that provides **network data** rather than a service that provides data which may be accessible over any number of unspecified networks (which would be so broad as to apply to nearly any computer-based services given the interconnectivity of devices). For

example, it was (and still is) common in the mobile data industry to refer to “network data” or “data service” to refer to a network service, such as 3G, 4G, or 5G service, that allows devices to send and receive data via that network service. *See, e.g.*, Ex. 2021

(https://appleinsider.com/articles/09/11/10/att_defends_its_data_network_from_verizon_ad_attacks) (Nov. 10, 2009) (“This historical setting allows Verizon to compare its entire **data network** against just the faster portion of AT&T's 3G mobile **data network** while ignoring AT&T's existing 2.5G network that approaches Verizon's EVDO in speed. By only comparing the newest segment of AT&T's network, Verizon can advertise ‘3G maps’ that are technically accurate, but grossly misleading to users who want to obtain **data service** to download email and access the web.”) (notably, “data service” is described here as being **used to** “download email and access the web”—email and website services are not themselves “network data service”); Ex. 2022 (<https://www.citizen-times.com/story/news/madison/2021/06/28/alexander-residents-raise-concerns-proposed-verizon-cell-tower/5330311001/>) (June 29, 2021) (explaining that a Verizon application for construction of a cell tower was “to improve coverage around the vicinity (and) improve **network data** throughput speeds for area customers”); https://www.att.com/Common/about_us/files/pdf/emerging_devices/iPad_fact_sheet

[et_081210.pdf](#) (“Once you sign up for iPad 3G **data service**, you can add to or cancel your domestic plan at any time – no penalty.”)²; Ex. 2024 (<https://www.t-mobile.com/home-internet/policies/internet-service/network-management-practices>) (“We prioritize **network data by plan** and brand to deliver a range of customer choice points at great values.”); Ex. 2025 (<https://www.att.com/support/article/wireless/000100296/>) (“The AT&T Turbo add-on provides our best experience by improving **network data performance**.... It gives you the choice to purchase an **improved level of service** to help benefit high-performance mobile apps like mobile gaming when **on the AT&T network** (excludes roaming and Wi-Fi®).”).

41. In my opinion, the meaning of terms such as “network data,” “data service,” and “network data service” as it relates to the field of the ’042 patent are interchangeable, and have not changed in relevant respect between 2009 and present.

42. This understanding of “network data service” is also consistent with my understanding of Headwater’s preliminary infringement contentions as

² Based on the AT&T URL of this document ending in 081210, and the document describing iPad 3G data service (which was available in the 2010 timeframe), I would expect that this document is from approximately August 12, 2010 or December 8, 2010. See <https://www.apple.com/newsroom/2010/01/27Apple-Launches-iPad/> (2010 iPad announcement discussing 3G data plans).

submitted in district court litigation. For instance, in Headwater’s infringement contentions against Verizon, Headwater identified the claimed “service profile information” (with which the service policy setting is associated) as being “[c]arrier configuration information” associated with “APN access settings and service plan settings.” Ex. 2026 at 14; *see also* Ex. 2027 at 11 (infringement contentions against T-Mobile asserting the same); Ex. 2028 at 13 (infringement contentions against AT&T asserting the same). A POSITA would understand that APN access settings and service plan settings relate specifically to the provision of network data service in the sense that they are settings required by data service providers (such as Verizon, T-Mobile, and AT&T) for network data service plans such as the data or voice plans that the data service providers provide to consumers. *See* <https://www.samsung.com/uk/support/mobile-devices/how-do-i-check-my-apn-mobile-internet-settings/> (“An Access Point Name (APN) provides all the details that your device needs to connect to mobile data. If you are setting up a new device or putting your SIM card into a device for the first time, your network operator should send you their APN details in a configuration message.”); <https://www.verizon.com/support/knowledge-base-212894/> (“Carrier settings updates are small files that are installed on iOS devices. The carrier settings include updates to Access Point Names (APNs), MMS settings, features like

tethering and default apps. Having the most up to date carrier settings is recommended for the proper functionality of the device.”).

43. I would imagine that Petitioners (as providers of network data services of the type discussed in the '042 patent) are likely aware of the distinction between general email and website data, on the one hand, and network data services (such as 5G, voice, and text services) that involve provision of network data on the other hand. Nevertheless, they fail to identify how Limont discloses a “network data service” under the proper interpretation that satisfies the requirements of claim 1 of the '042 patent. Instead, they identify only email and web site services as allegedly constituting the “network data service.” I have reviewed the entirety of the '042 patent, and I was able to find no teachings in the '042 patent that would imply that a service such as provision of a web page or an email service was considered to be part of the claimed invention. For example, the patent does not even specifically mention email or web pages, in contrast to extensive discussions of provision of data service over access networks which provide network data service.

44. Furthermore, a POSITA would understand that a provider of email or web page services verifying and updating configuration settings (which is what the Petition relies on from Limont’s teachings) does not solve the same problem that the '042 patent is concerned with, which is alleviating user capacity concerns for an access network in order to avoid “degrad[ing] overall network service

experience.” *See* Ex. 1001 at 1:45-2:3; Section IV, *supra*. For example, a provider of email services ensuring that a user has the appropriate configuration settings to access the email server may help that individual user access the network, but does nothing to reduce user capacity concerns or otherwise prevent “overall network service experience” from being degraded from overuse, as the ’042 patent teaches.