

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO. LTD.
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

Case No. IPR2025-00482
Patent No. 11,405,429

**DECLARATION OF ERIK DE LA IGLESIA IN SUPPORT OF PATENT
OWNER'S 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 April 28, 2025, 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. 11,405,429 (“the ’429 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 ’429 patent. I have no personal interest in the outcome of the case.

5. In preparing this Declaration, I have reviewed and considered the ’429 patent, the ’429 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 2007.

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 '429 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 relate 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 2007. As reflected in Exhibit 2007, 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 '429 patent “would have had (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 education could substitute for industry 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 '429 patent.

V. Dr. McDaniel fails to show that the alleged “secure execution environment” is “separately secure from the secure modem subsystem” as the claims require.

28. Claim 1, the sole independent claim, recites:

1. A method of operating a wireless end-user device, the method comprising:
connecting from *a secure modem subsystem* to a wireless cellular network;
connecting a first secure control channel from the secure modem subsystem through the wireless cellular network to a network service controller;
connecting a second secure control channel from *a secure execution environment, separately secure from the secure modem subsystem*, through the secure modem subsystem and the wireless cellular network to the network service controller;
receiving at the secure execution environment, via the second secure control channel, one or more messages from the network service controller, the one or more messages comprising one or more service policy settings;
storing the one or more service policy settings in a secure memory partition accessible only from the secure execution environment; and
enforcing, at least in part from the secure execution environment, a network service profile comprising the one or

more service policy settings, to control the wireless end-user device use of a service on the wireless cellular network.

29. As shown above, Claim 1 requires a “secure execution environment” that is “*separately secure*” from a “secure modem subsystem.”

30. Dr. McDaniel maps the “secure modem subsystem” of the claims to the Schmidt reference’s “TSS-DM together with the modem’s transceiver circuitry [of DeBeer].” Ex. 1003 ¶123. He also maps the “secure execution environment” of the claims to Schmidt’s TSS-MNO. Ex. 1003, ¶226. (Schmidt makes clear that the “TSS-DM” is a “device manufacturer-trusted subsystem,” and the “MNO-TSS” is a “mobile network operator-trusted subsystem.” Ex. 1005 at Abstract.)

31. Dr. McDaniel alleges that these two components are “separately secure” from one another because they are “*separate* trusted sub systems” and “*separate* execution environments.” Ex. 1003, ¶233.

32. However, Dr. McDaniel fails to acknowledge, for purposes of his analysis in this regard, that the TSS-DM “controls *all* internal and external communications” (Ex. 1005, [0032]), which necessarily includes all communications to and from the TSS-MNO subsystem (as well as communications within that subsystem). In other words, the TSS-DM is responsible for securing communications to, from, and within the TSS-MNO, such that these two subsystems are not *separately* secure from one another. Instead, a POSITA would

realize that their security is highly integrated and that the TSS-DM is responsible for securing the TSS-MNO, such that a POSITA would not understand these two systems to be *separately* secure from one another under the plain meaning of that term.

33. Dr. McDaniel's position in this regard appears to be that if two systems are both (1) secure and (2) separate from one another, they must necessarily be "separately secure." That is incorrect; the claim does not merely require that the two systems be "separate" and "secure," but instead requires that they be *separately secure* such that the security of one is separate from the security of the other. That is certainly not the case here, where the TSS-DM is responsible for controlling all communications to, from, and within the TSS-MNO.

34. Dr. McDaniel further contends that the TSS-MNO and TSS-DM "are separately secure" because "each trusted subsystem 'is always configured to sign and encrypt any given data.'" Ex. 1003, ¶233 (quoting Ex. 1005, [0031]). But a POSITA would understand that both systems making use of encryption mechanisms does not make the systems *separately* secure, because again, the "TSS-DM... is responsible for the integrity [and] configuration... of the device together with its installed hardware components," and "provides "*all* security sensitive resources for a device" including "control[l]ing *all* internal and external communications and secur[ing] the connection channel." Ex. 1005 [0032]. Dr.

McDaniel simply never explains how, if the TSS-DM is responsible for providing *all security sensitive resources for a device*, it could be “*separately* secure” from the other subsystems within the device. Rather, in Schmidt there is an extraordinarily high level of security interdependence such that the TSS-DM and TSS-MNO would not be “separately secure” under any plausible interpretation of that term (and certainly not under its plain meaning).

35. In sum, my opinion is that because the alleged secure execution environment relies extensively on the security provided by the TSS-DM in the manner taught by Schmidt, the two systems are not “separately secure” from one another under the plain meaning of that term. Dr. McDaniel does not seriously contend otherwise, other than to interpret “separately secure” to mean “separate and secure,” which a POSITA would understand has a different claim scope than “separately secure.”