UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Juniper Networks, Inc. & Palo Alto Networks, Inc.
Petitioners,

v.

Packet Intelligence LLC,
Patent Owner.

Regarding *Inter Partes* Review of:
U.S. Patent Nos. 6,665,725 (IPR2020-00336); 6,771,646 (IPR2020-00337);
6,839,751 (IPR2020-00338); and 6,954,789 (IPR2020-00339, -00486)

DECLARATION OF CATHLEEN T. QUIGLEY

I, Cathleen T. Quigley, make the following declaration pursuant to 28 U.S.C. §1746:

1. My name is Cathleen T. Quigley. I am over the age of twenty-one years, of sound mind, and capable of making the statements set forth in this Declaration. I am competent to testify about the matters set forth herein. All the facts and statements contained herein are within my personal knowledge and/or within my field of expertise, and they are true and correct to the best of my knowledge.

2. I have been asked by Heim, Payne & Chorush, LLP to form and offer opinions regarding validity of U.S. Patent Nos. 6,665,725 (the "'725 Patent"); 6,771,646 (the "'646 Patent"); 6,839,751 (the "'751 Patent"); and 6,954,789 (the "'789 Patent") (collectively the "Challenged Patents").[1] This Declaration contains a summary of and the supporting explanations for my opinions concerning the validity of the Challenged Patents.

3. I have been advised that Heim, Payne & Chorush, LLP represents Packet Intelligence LLC ("PI"), the owner of the Challenged Patents, and that Juniper Networks, Inc. & Palo Alto Networks, Inc. (the "Petitioners") have challenged the validity of the Challenged Patents. I have no personal or financial stake or interest in PI, the Petitioners, or the Challenged Patents.

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[1] I also refer to U.S. Patent No. 6,651,099 (the "'099 Patent") during my analysis, which I understand is incorporated by reference by each of the Challenged Patents.

I. Education and Experience

4. A Curriculum Vitae of my educational background and professional experience is attached as Exhibit 2062. I provide a summary of certain experience that I have relevant to the technical field of the Challenged Patents.

5. I earned a Bachelor's degree in Electrical Engineering from the Georgia Institute of Technology in 1984. I was inducted into the Institute's Council of Outstanding Young Engineering Alumni in 2001, and its Academy of Distinguished Engineering Alumni in 2014.

6. I am currently working as an independent consultant for Swiftwater Consulting, LLC in the field of data communications, semiconductors, and cable system architecture. My work includes lower level networking protocols such as Ethernet, Bluetooth, Wifi, and MoCA as well as higher level IP protocol related topics. I also perform work related to the Data Over Cable Service Interface Specification (DOCSIS) and mobile video, communications, and mesh computing. I began working in this consultant role in 2009.

7. Prior to consulting, I worked at Broadcom Corporation in Irvine, California from 1996 to 2008. I joined Broadcom in 1996 as Director of the Residential Broadband Group, where I directed the residential broadband efforts. My work involved extensive development of cable modem (CM) technologies, as well as cable modem termination systems (CMTS) technologies. I spearheaded the efforts

to take Broadcom's residential broadband products from infancy to its position as an industry leader in the cable modem space.

8. From 2001 to 2008, I was a Broadcom Fellow and Senior Director for Advanced Broadband Architectures in the Office of the Chief Technical Officer (CTO). I was the architect of Broadcom's broadband strategy and product definitions, including DOCSIS 2.0, 3.0, streaming video, and DOCSIS voice products. I was a key contributor and industry speaker on DOCSIS 3.0 issues and solutions and often travelled and spoke extensively worldwide building industry consensus. I continue to give talks and presentations regarding technology developments in the cable industry to this day.

9. I played a major role in the design and development of the world's first Multimedia Cable Network System Partners (MCNS)/DOCSIS cable modem and headend integrated circuits and reference system designs. I also led the efforts developing other state-of-the-art analog/digital full custom CMOS integrated circuits including MAC, PHY, CPU, and peripherals for integrated system-on-chip products. My contributions included several technologies implemented in Broadcom's products, including key developments in the Quality of Service ("QoS") extensions to DOCSIS 1.1 and 2.0 such as transparent packet fragmentation and

concatenation at the MAC layer.[2] These efforts resulted in multiple patents for me and my team.

10. DOCSIS 1.1 was released in March of 1999. A key architectural feature I drove in the creation of the DOCSIS 1.1 QoS feature set was the use of a Service Flow and ID associated with individual IP flows to and from a modem. These Service Flow IDs could be used to assign a different QoS level to flows for specific protocols (such as HTTP sessions, SMTP, and FTP). The relevant Service ID for a protocol was identified based on inspection of IPv4 and IPv6 header fields and Ethernet LLC header fields. This was particularly useful for bandwidth allocation, management, tiering, and other QoS mechanisms, and it allowed for dynamic QoS adjustments as traffic ebbed and flowed.

11. In developing the QoS and fragmentation/concatenation mechanisms for DOCSIS 1.1, I led a team performing detailed protocol analysis and simulation using OPNET. We built MAC layer models of the baseline protocol and proposed extensions, developed detailed scenarios of traffic patterns and usage models, and evaluated the different options in simulation. Statistical analysis of the performance of these extensions were included in multiple papers and presentations to the

[2] U.S. Patent No. 7,103,065 Data Packet Fragmentation in a Cable Modem System.

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