

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Smethurst et al.
U.S. Patent No.: 7,224,668
Issue Date: May 29, 2007 Atty Docket No.: 40963-0006IP1
Appl. Serial No.: 10/307,154
Filing Date: Nov. 27, 2002
Title: CONTROL PLANE SECURITY AND TRAFFIC FLOW
MANAGEMENT

DECLARATION OF BILL LIN

1. My name is Dr. Bill Lin. I am a professor of electrical and computer engineering at the University of California, San Diego. I understand that I am submitting a declaration in connection with Inter Partes review (“IPR”) proceedings before the United States Patent and Trademark Office for U.S. Patent Number 7,224,668 (“the ’668 Patent”).

2. I have been retained on behalf of Arista Networks, Inc. (“Arista”). My compensation is not based on the outcome of my opinions.

3. I have reviewed the ’668 Patent, including the claims of the patent in view of the specification and the file history. In addition, I have reviewed the following documents:

- U.S. Patent No. 6,674,743 (“Amara”)
- U.S. Patent No. 6,970,943 (“Subramanian”)
- U.S. Patent No. 6,460,146 (“Moberg”)
- U.S. Patent No. 6,115,378 (“Hendel”)
- IETF RFC 2661, “Layer Two Tunneling Protocol ‘L2TP’,” retrieved from <http://www.rfc-editor.org/rfc/rfc2661.txt> (“IETF RFC 2661”)
- IETF RFC 792, “Internet Control Message Protocol,” retrieved from <http://www.rfc-editor.org/rfc/rfc792.txt> (“IETF RFC 792”)
- Joe Habraken, Practical Cisco Routers, QUE Corporation, 1999 (“Habraken”)

4. My curriculum vitae (“CV”) is provided as an Exhibit.

5. I received a Bachelor of Science in Electrical Engineering and Computer Sciences from University of California, Berkeley in May 1985; a Masters of Science in Electrical

Declaration of Dr. Bill Lin
U.S. Patent No.: 7,224,668
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Engineering and Computer Sciences from the University of California, Berkeley in May 1988; and a Ph.D. in Electrical Engineering and Computer Sciences from the University of California, Berkeley in May 1991.

6. I served as the Head of Research of the Systems Control and Communications Group of IMEC Research Laboratory, Leuven, Belgium from February, 1992 – December, 1996. I also have served or am currently serving as Associate Editor or Guest Editor on 2 ACM or IEEE journals, an Associate Editor on the International Journal of Embedded Systems, as General Chair on 4 ACM or IEEE conferences, on the Organizing or Steering Committees for 6 ACM or IEEE conferences, and on the Technical Program Committees of over 40 ACM or IEEE conferences.

7. I am a named inventor on five patents in the field of computer networking, and have published over 160 journal articles and conference papers in top-tier venues and publications.

8. The '668 Patent issued from U.S. application number 10/307,154, which was filed on November 27, 2002. The '668 Patent does not include a priority claim. It is therefore my understanding that the filing date of November 27, 2002 (hereinafter the "Critical Date") represents the earliest possible priority date to which the '668 Patent is entitled.

9. A person of ordinary skill in the art as of the Critical Date (hereinafter a "POSITA") would have had a Masters of Science Degree (or a similar technical Masters Degree, or higher degree) in an academic area emphasizing computer networking or, alternatively, a Bachelor Degree (or higher degree) in an academic area emphasizing the design of electrical, computer, or software engineering and having several years of experience in computer network engineering and the design of computer networks. Additional education in a relevant field, such

as computer science, computer engineering, or electrical engineering, or industry experience may compensate for a deficit in one of the other aspects of the requirements stated above.

10. I am familiar with the knowledge and capabilities of one of ordinary skill in these areas, and notably with designing computer communications networks and computer architecture problems, including the design of data networks, high-performance switches and routers, many-core processors and systems-on-chip, and ASIC chip designs and studying their interaction with people in experimental and real-world environments. Specifically, my experience working with industry, with undergraduate and post-graduate students, with colleagues from academia, and with engineers practicing in industry has allowed me to become directly and personally familiar with the level of skill of individuals and the general state of the art. Unless otherwise stated, my testimony below refers to the knowledge of one of ordinary skill in the fields as of the Critical Date, or before.

11. This declaration is organized as follows:

- I. Brief Overview of the '668 Patent (pg. 3)
- II. Terminology (pg. 6)
- III. Discussion of References (pg. 11)
- IV. Legal Principles (pg. 40)
- VII. Additional Remarks (pg. 41)

I. Brief Overview of the '668 Patent

12. The '668 patent describes an internetworking device, such as a router, that routes packets received at the device towards their destination. An internetworking device 100 of the '668 patent is illustrated in Figure 1:

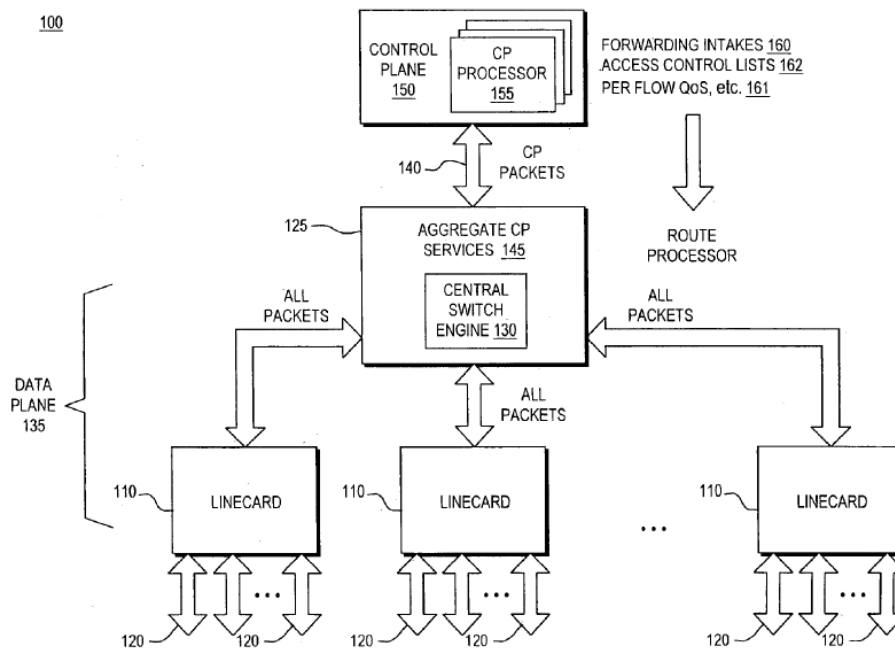


FIG. 1

13. The internet networking device 100 includes two logical components: a data forwarding plane 135 and a control plane 150. The '668 Patent at 3:22-34; 5:5-21. The data plane 135 is composed of physical interface ports 120, line cards 110, and a central switch engine 130. *Id.* at 5:5-9. The data plane 135 passes along, or “forwards,” packets received at the port interfaces 120 toward their ultimate destination. *Id.* at 1:54-56; 3:23-26; 5:8-9. The control plane 150 is “a collection of processes” 155 and is responsible for higher layer functions of the device, such as control and configuration of the internet networking device 100. *Id.* at 1:56-59; 3:26-31; 4:58-61; 5:10-23.

14. The internet networking device 100 applies port services to packets passing through the internet networking device 100. *Id.* at 6:1-44; 6:67-7:14. Port services are a set of policies or rules that are applied to the packets. *Id.* at 4:3-8; 6:4-7; 6:24-27; 9:1-4. Port services may include Quality of Service processing or packet rate-limiting. *Id.* at 4:6-8; 6:4-23. For example, “one policy may be to rate limit Telnet SYN packets to a specific rate that is a tolerable rate

determined through a specific hardware configuration.” *Id.* at 4:6-8. Port services may be defined using class maps, policy maps, or access control lists. *Id.* at 7:19-20; 7:46-47.

15. The internetworking device applies different port services to different packet types. *Id.* at 3:56-58; 6:16-18; 6:41-43. Some of the packets received by the internetworking device are “normal transit packet[s],” which are destined for other devices connected to the internetworking device. *Id.* at 7:3-8. Other packets, however, are “control plane packets,” which are packets destined for the control plane so that the control plane can provide control and configuration of the internetworking device. *Id.* at 6:57-63; 5:56-58; 7:8-14. For example, “protocol control packets” may be destined for the control plane. *Id.* at 5:30-31; 8:34-49.

16. The internetworking device 100 includes “normal input and output port services” that are applied to normal transit packets. *Id.* at 6:41-43. The internetworking device 100 also includes control plane port services that are specifically for control plane packets. *See id.* at 7:5-14; 9:1-6. These control plane port services are applied only to packets destined to the control plane and not to normal transit packets that are forwarded out of the device. *See, e.g., id.* at 3:56-58; 6:16-18; 6:41-43; 7:5-14.

17. To this end, the internetworking device 100 includes the control plane port services 145 and a control plane port 140. The control plane port 140 “may or may not be a single physical port.” *Id.* 5:1-2. “For example, it may be a virtual address through which packets travel or are routed from the data plane 135 to the control plane 150.” *Id.* at 5:2-4. The packets bound for the control plane 150 are routed through the control plane port 140. *Id.* at 7:5-12; 9:1-6. The control plane port services 145 are only applied to those packets routed through the control plane port 140. *Id.* at 3:56-58; 6:16-18; 7:13-14.

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