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9 *Attorneys for Plaintiff*  
10 FINJAN, INC.

11 **IN THE UNITED STATES DISTRICT COURT**  
12 **FOR THE NORTHERN DISTRICT OF CALIFORNIA**  
13 **SAN FRANCISCO DIVISION**

15 FINJAN, INC., a Delaware Corporation,

16 Plaintiff,

17 v.

18 JUNIPER NETWORKS, INC., a Delaware  
19 Corporation,

20 Defendant.

Case No.: 3:17-cv-05659-WHA

**DECLARATION OF DR. NENAD  
MEDVIDOVIĆ IN SUPPORT OF  
PLAINTIFF FINJAN, INC.'S OPPOSITION  
TO DEFENDANT JUNIPER NETWORKS,  
INC.'S MOTION TO STRIKE THEORIES  
FROM FINJAN'S MOTION FOR SUMMARY  
JUDGMENT, AND MOTION TO AMEND**

Date: May 2, 2019  
Time: 8:00 a.m.  
Courtroom: Courtroom 12, 19<sup>th</sup> Floor  
Before: Hon. William Alsup

1 I, Nenad Medvidović, hereby declare that:

2 1. I make this Declaration based upon my own personal knowledge, information, and belief,  
3 and I would and could competently testify to the matters set forth herein if called upon to do so.

4 **I. BACKGROUND, EXPERIENCE AND QUALIFICATIONS**

5 2. I received a Bachelor of Science (“BS”) degree, Summa Cum Laude, from Arizona State  
6 University’s Computer Science and Engineering department.

7 3. I received a Master of Science (“MS”) degree from the University of California at  
8 Irvine’s Information and Computer Science department.

9 4. I received a Doctor of Philosophy (“PhD”) degree from the University of California at  
10 Irvine’s Information and Computer Science department. My dissertation was entitled, “Architecture-  
11 Based Specification-Time Software Evolution.”

12 5. I am employed by the University of Southern California (“USC”) as a faculty member in  
13 the Computer Science Department, and have been since January 1999. I currently hold the title of  
14 Professor with tenure. Between January 2009 and January 2013, I served as the Director of the Center  
15 for Systems and Software Engineering at USC. Between July 2011 and July 2015, I served as my  
16 Department’s Associate Chair for PhD Affairs.

17 6. I am very familiar with and have substantial expertise in the area of software systems  
18 development/software engineering, software architecture, software design, and distributed systems.

19 7. I have over 25 years of research experience that has spanned a wide range of issues  
20 pertaining to large, complex, distributed software systems. This research has included security and trust  
21 as significant components. As one example, my research has resulted in a new technique that deploys a  
22 software system on a set of distributed computers in a manner that optimizes that system’s “non-  
23 functional” characteristics, including efficiency, scalability, resource consumption, reliability, as well as  
24 security. As another example, motivated by the frequent vulnerability of distributed systems to  
25 malicious adversaries, I have developed, published, and eventually patented a novel technique for  
26 ensuring system security and data privacy in open computer networks. I have recently developed a tool  
27 for protecting Android users from security vulnerabilities originating from remotely downloaded  
28

1 applications. A paper describing the tool won the “best tool-paper” award at a recent major software  
2 engineering conference. I have co-authored a widely adopted textbook on software system  
3 architectures, in which several chapters deal with the issue of security and one entire chapter is  
4 specifically dedicated to security and trust.

5 8. My rate of compensation for my work in this case is \$650 per hour plus any direct  
6 expenses incurred. My compensation is based solely on the amount of time that I devote to activity  
7 related to this case and is in no way affected by any opinions that I render. I receive no other  
8 compensation from work on this action. My compensation is not dependent on the outcome of this  
9 matter.

## 10 **II. MATERIALS REVIEWED**

11 9. I have reviewed and relied on the documents cited herein, including U.S. Patent No.  
12 8,141,154 (the “‘154 Patent”).

13 10. My opinions below are from the perspective of a person of ordinary skill in the art  
14 (POSITA). Based on review of the ‘154 Patent and consideration of the abovementioned factors, it is  
15 my opinion that a POSITA at the time of the invention of the ‘154 Patent would be a person with a  
16 Bachelor’s degree in computer science or a related academic field, and either (1) two or more years of  
17 industry experience and/or (2) an advanced degree in computer science or a related academic field. In  
18 forming my opinions in this declaration, I have considered the issues from the perspective of a  
19 hypothetical POSITA.

## 20 **III. TECHNICAL BACKGROUND**

### 21 **A. “HTTP://” First Function**

22 11. HTTP is an application layer protocol as understood in the context of Internet protocol  
23 suite. An HTTP function is the calling of the HTTP protocol send or receive content on the Internet, and  
24 may also be included in HTTP content that is received from a remote webserver.

25 12. The inputs or resources for HTTP are identified and located on the network by Uniform  
26 Resource Locators (URLs), using the Uniform Resource Identifiers (URI's) schemes HTTP and HTTPS.  
27 URIs and hyperlinks in HTML documents form interlinked hypertext documents. *See*

1 [https://en.wikipedia.org/wiki/Hypertext\\_Transfer\\_Protocol](https://en.wikipedia.org/wiki/Hypertext_Transfer_Protocol).

2 13. There are a number of ways that the HTTP function may be implemented or invoked.  
3 For example, a technique known as “redirection” uses the HTTP function. In particular, the HTTP  
4 function is used for “redirection,” where a user is redirected to a URL link in an HTTP function.

5 14. This can be seen in the Wikipedia page for redirection, where a redirection to a URL  
6 would involve the encoding the function of http:// and the URL that the person is directed to.

```
7 HTTP/1.1 301 Moved Permanently
8 Location: http://www.example.org/
9 Content-Type: text/html
10 Content-Length: 174
11
12 <html>
13 <head>
14 <title>Moved</title>
15 </head>
16 <body>
17 <h1>Moved</h1>
18 <p>This page has moved to <a href="http://www.example.org/">http://www.example.org/</a>.</p>
19 </body>
20 </html>
```

13 See [https://en.wikipedia.org/wiki/URL\\_redirection](https://en.wikipedia.org/wiki/URL_redirection).

14 15. In another example, the reference to a “payload” function that downloads a payload from  
15 a particular web source is through an HTTP function. In this example, the HTTP function would  
16 identify a file to be downloaded to the system.

17 16. When content in a network communications includes a URL/IP address it is understood  
18 that this is a call to open the link denoted by the “http://” prefix, where the link is naturally associated  
19 with an HTTP function for communication with the URL/IP address (such as an HTTP. GET request).  
20 The input associated with the call is the address of a site (such as “example.com/malware.exe”) as  
21 indicated through an URL or IP address.

22 17. When content in a network communications include a call to a function such as an  
23 unescape(), eval(), or document. write() function or iframe code (e.g., the form of “<iframe  
24 src="URL"></iframe>”), the function may refer to an URL/IP address in an obfuscated form. The  
25 URL/IP address (regardless of whether it is in its obfuscated or original form) is considered as an  
26 “input” associated with the call to open the link denoted by the “http://” prefix, where the link is  
27 naturally associated with an HTTP function for communication with the URL/IP address (such as an  
28

1 HTTP. GET request).

2 18. In reference to network content that includes URLs, URI, and IP addresses, a POSITA  
3 would understand “http://” to be the function taking this content.

4 19. Likewise, references to JavaScript and iframes, a POSITA would understand “http://” as  
5 a function used for directing the network connection.

6 **B. “Whitelisting”**

7 20. Whitelisting is a known technique where, for example, a file hash and/or URL/IP address  
8 of a clean file is added to a whitelist. Whitelisting is often understood to be result of a security system  
9 or computer indicating that using or invoking the content is safe. It is understood that one way to  
10 accomplish this is by finishing the processing and marking the object as “clean” or otherwise allow the  
11 communications based on the reputation look up or based on the result from an analysis.

12  
13 I declare under penalty of perjury of the United States of America that the foregoing is true and  
14 correct. Executed on March 28, 2019, in Manhattan Beach, California.

15  
16 

17  
18 \_\_\_\_\_  
Nenad Medvidovic, Ph.D.