

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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THE MANGROVE PARTNERS MASTER FUND, LTD., APPLE INC.,  
and BLACK SWAMP IP, LLC,  
Petitioner,

v.

VIRNETX INC.,  
Patent Owner.

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Case IPR2015-01047<sup>1</sup>  
Patent 7,490,151 B2

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Before MICHAEL P. TIERNEY, KARL D. EASTHOM, and  
STEPHEN C. SIU, *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and C.F.R. § 42.73*

The Mangrove Partners Master Fund, Ltd., Apple Inc., and Black Swamp IP, LLC (collectively, “Petitioner”) requested *inter partes* review of claims 1, 2, 6–8, and 12–14 of U.S. Patent No. 7,490,151 B2 (“the ’151

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<sup>1</sup> Apple Inc. and Black Swamp IP, LLC, which filed petitioners in IPR2016-00063 and IPR2016-00167, respectively, have been joined as Petitioners in the instant proceeding.

patent”). We issued a Decision to institute an *inter partes* review (Paper 11, “Inst. Dec.”) of claims 1, 2, 6–8, and 12–14 of the ’151 patent as unpatentable under 35 U.S.C. 102 as anticipated by Kiuchi<sup>2</sup> or under 35 U.S.C. 103(a) over the combination of Kiuchi, RFC 1034,<sup>3</sup> and Rescorla<sup>4</sup> or the combination of Kiuchi and any one of Rescorla or RFC1034. Inst. Dec. 3, 12; Paper 24 1–2.

After institution of trial, VirnetX Inc. (“Patent Owner”) filed a Patent Owner’s Response (Paper 54 (redacted version), “PO Resp.” and Paper 54 (non-redacted version)), to which Petitioner replied (Paper 58 (redacted version), “Pet. Reply”; Paper 56 (non-redacted version); and Paper 59, “Pet. Separate Reply”). Patent Owner and Petitioner also each filed a Motion to Exclude, a corresponding Patent Owner’s Opposition to Petitioner’s Motion to Exclude and Petitioner’s Opposition to Patent Owner’s Motion to Exclude, and corresponding Petitioner’s Reply to Patent Owner’s Opposition to Motion to Exclude and Patent Owner’s Reply to Petitioner’s Opposition of Motion to Exclude. Papers 64, 66, 68, 69, 70, 71. Patent Owner and Petitioner each also filed a Motion to Seal. Paper 47, 57. Oral argument was conducted on June 30, 2016. Transcripts of that argument has been made of record. Paper 79, “Tr.”; see also Paper 78.

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<sup>2</sup> Takahiro Kiuchi and Shigekoto Kaihara, *C-HTTP – The Development of a Secure, Closed HTTP-Based Network on the Internet*, PROCEEDINGS OF THE SYMPOSIUM ON NETWORK AND DISTRIBUTED SYSTEM SECURITY, IEEE 64-75 (1996) (Ex. 1002, “Kiuchi”).

<sup>3</sup> P. Mockapetris, *Domain names – Concepts and Facilities*, Network Working Group, Request for Comments: 1034 (1987) (Ex. 1005, “RFC 1034”).

<sup>4</sup> E. Rescorla and A. Schiffman, *The Secure HyperText Transfer Protocol*, Feb. 1996 (Ex. 1004, “Rescorla”).

We have jurisdiction under 35 U.S.C. § 318(a). After considering the evidence and arguments of both parties, and for the reasons set forth below, we determine that Petitioner met its burden of showing, by a preponderance of the evidence, that claims 1, 2, 6–8, and 12–14 of the '151 patent are unpatentable.

#### RELATED MATTERS

The '151 patent is the subject of the following civil actions: (i) Civ. Act. No. 6:13-cv-00211-LED (E.D. Tex.), filed February 26, 2013; (ii) Civ. Act. No. 6:12-cv-00855-LED (E.D. Tex.), filed November 6, 2012; and (iii) Civ. Act. No. 6:10-cv-00417-LED (E.D. Tex.), filed August 11, 2010. Pet. 1.

The '151 patent is also the subject of Reexamination Control Nos. 95/001,697 and 95/001,714. Pet. 2.

#### THE '151 PATENT (EX. 1001)

The '151 patent discloses a system and method for automatic creation of a virtual private network (VPN) in response to a domain-name server look-up function. Ex. 1001, 36:58–60.

#### ILLUSTRATIVE CLAIM(S)

Independent claim 1 is representative of the claimed subject matter. Claim 1 is reproduced below:

1. A data processing device, comprising memory storing a domain name server (DNS) proxy module that intercepts DNS requests sent by a client and, for each intercepted DNS request, performs the steps of:
  - (i) determining whether the intercepted DNS request corresponds to a secure server;

(ii) when the intercepted DNS request does not correspond to a secure server, forwarding the DNS request to a DNS function that returns an IP address of a nonsecure computer, and

(iii) when the intercepted DNS request corresponds to a secure server, automatically initiating an encrypted channel between the client and the secure server.

## OVERVIEW OF PRIOR ART

### *Kiuchi*

Kiuchi discloses closed networks (i.e., closed HTTP (Hypertext Transfer Protocol)-based network (C-HTTP)) of related institutions on the Internet. Ex. 1002, 64. A client and client-side-proxy “asks the C-HTTP name server whether it can communicate with the [specified] host” and, if “the query is legitimate” and if “the requested server-side proxy is registered in the closed network and is permitted to accept the connection,” the “C-HTTP name server sends the [requested] IP address.” Ex. 1002, 65. After confirmation by the C-HTTP name server “that the specified server-side proxy is an appropriate closed network member, a client-side proxy sends a request for connection to the server-side proxy, which is encrypted.” *Id.*

The server-side proxy “accepts [the] request for connection from [the] client-side proxy” (Ex. 1002, 65) and, after the C-HTTP name server determines that “the client-side proxy is an appropriate member of the closed network,” that “the query is legitimate,” and that “the client-side proxy is permitted to access . . . the server-side proxy,” the “C-HTTP name server sends the IP address [of the client-side proxy].” Ex. 1002, 66. Upon receipt of the IP address, the server-side proxy “authenticates the client-side proxy” and sends a connection ID to the client-side proxy. After the client-side proxy “accepts and checks” the connection ID, “the connection is

established,” after which time, the client-side proxy forwards “requests from the user agent in encrypted form using C-HTTP format.” Ex. 1002, 66.

#### *RFC1034*

RFC 1034 discloses that a “name server may be presented with a query” and that the name server may either “pursue[] the query for the client at another server” (recursive approach) or “refer[] the client to another server and lets the client pursue the query” (iterative approach). Ex. 1005, 4.

#### *Rescorla*

Rescorla discloses syntax for securing messages sent using Hypertext Transfer Protocol. Ex. 1004, 1.

### ANALYSIS

#### Patentability issues

As Petitioner explains, Kiuchi discloses, for example, a data processing device, comprising memory storing a domain name server (DNS) proxy module that intercepts DNS requests sent by a client. *See, e.g.*, Pet. 25-28; Ex. 1003 at 18, 20–22, 27, 28, 31; Ex. 1002, 64–66. Kiuchi also discloses determining whether the intercepted DNS request corresponds to a secure server (Pet. 28–29; Ex. 1003, 23, 24, 26; Ex. 1002, 65), when the intercepted DNS request does not correspond to a secure server, forwarding the DNS request to a DNS function that returns a IP address of a nonsecure computer (Pet. 29–30; Ex. 1003, 23; Ex. 1002, 65), and when the intercepted DNS request corresponds to a secure server, automatically initiating an encrypted channel between the client and the secure server (Pet. 30–32; Ex. 1003 23–25, 28–31; Ex. 1002, 64–66).

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