

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner,

v.

VirnetX, Inc. and Science Application International Corp.,

Patent Owner.

Patent No. 8,868,705

Issued: October 21, 2014

Filed: September 13, 2012

Inventors: Victor Larson, *et al.*

Title: AGILE NETWORK PROTOCOL FOR SECURE COMMUNICATIONS
USING SECURE DOMAIN NAMES

Patent No. 8,850,009

Issued: September 30, 2014

Filed: June 6, 2013

Inventors: Victor Larson, *et al.*

Title: SYSTEM AND METHOD EMPLOYING AN AGILE NETWORK
PROTOCOL FOR SECURE COMMUNICATIONS USING SECURE DOMAIN
NAMES

Inter Partes Review Nos. IPR2015-00810, IPR2015-00811, IPR2015-00812 and
IPR2015-00813

**DECLARATION OF ROBERTO TAMASSIA REGARDING U.S. PATENT
NOS. 8,868,705 AND 8,850,009**

TABLE OF CONTENTS

I. INTRODUCTION1

A. Engagement 1

B. Background and Qualifications 1

C. Compensation and Prior Testimony 3

D. Information Considered..... 3

II. LEGAL STANDARDS FOR PATENTABILITY4

A. Anticipation 6

B. Obviousness..... 7

III. THE ‘705 AND ‘009 PATENTS12

A. Effective Filing Dates..... 13

1. Effective Filing Date of the ‘705 Patent 13

2. Effective Filing Date of the ‘009 Patent 15

B. Overview of The ‘705 and ‘009 Patents 17

C. The Prosecution History of The ‘705 and ‘009 Patents 20

1. The ‘705 Patent 20

2. The ‘009 Patent 21

D. Construction of Terms Used in the ‘705 and ‘009 Patent Claims 22

1. Background on the Broadest Reasonable Interpretation..... 22

2. Broadest Reasonable Interpretation of Terms of the ‘705 Patent..... 24

a) “intercepting . . . a request” 24

b) “domain name” 25

c) “secure domain name” 26

d) “provisioning information” 27

e) “modulated transmission link” / “unmodulated transmission link” 29

f) “phone”	31
3. Broadest Reasonable Interpretation of Terms of the ’009 Patent	32
a) “domain name service (DNS) request”	32
b) “interception of the DNS request”	33
c) “encrypted communication link”	33
d) “provisioning information”	35
e) “secure communications service”	35
f) “indication”	36
g) “virtual private network communication link”	38
h) “domain name”	39
i) “modulation”	40
E. Level of Ordinary Skill in the Art	40
IV. TECHNICAL BACKGROUND.....	41
A. COMPUTER NETWORKS	41
j) The OSI Model	41
k) The Internet	44
B. Internet Protocol Suite (TCP/IP)	45
C. DOMAIN NAME SYSTEM (DNS)	47
D. NETWORK ENCRYPTION.....	50
1. Symmetric Encryption – DES & AES	51
2. Asymmetric Key Encryption – Public/Private Keys	52
3. Key Exchange	53
V. IDENTIFICATION OF THE PRIOR ART.....	56
A. Exhibits 1009-1011 – The Aventail References	56
B. Exhibit 1007 – U.S. Patent 6,496,867 to Beser and Borella	57
C. Request for Comment (RFC) Publications	58
D. Exhibit 1008 – RFC 2401.....	60
E. Exhibit 1013 – RFC 2543.....	60

VI. OVERVIEW OF THE PRIOR ART	61
A. Aventail	61
1. Overview of Aventail Extranet Center	63
2. Aventail Connect.....	66
3. Aventail Extranet Server.....	67
4. Aventail Extranet VPN	71
5. Types of Communication Supported by Aventail	76
6. Physical Implementation of the Networks Used by Aventail.....	77
7. Security and Encryption in Aventail.....	78
a) SOCKS v5	79
b) Authentication Modules	81
8. Aventail Extranet Center – Operation.....	84
a) Step 1 – DNS Query Interception	90
b) Step 2 – Connection Interception and Setup	98
c) Step 3 – Encrypted Channel Communications.....	106
9. MultiProxy	107
10. Secure Extranet Explorer	111
11. Domains Names of Hosts on the Private Networks Protected by an Aventail Extranet Server.....	114
B. U.S. Patent No. 6,496,867 to Beser.....	115
1. Overview of Beser.....	115
2. Basic Components.....	119
d) Originating and Terminating End Devices.....	120
e) First and Second Network Devices	122
f) Trusted-Third-Party Network Device	125
3. IP Tunnel.....	128
4. Establishing an IP Tunnel	129
g) Request Containing A Unique Identifier.....	130
h) Negotiation of Private IP Addresses	137

Petition for *Inter Partes* Review of U.S. Patent Nos. 8,868,705 and 8,850,009

C.	RFC 2401, the IPsec Protocol	141
1.	Overview of RFC 2401	141
2.	Implementing Aventail Using the RFC 2401 Protocol.....	151
3.	Incorporating RFC 2401 into the Beser System	158
D.	U.S. Patent No. 5,237,566 to Brand (Ex. 1012).....	165
1.	Overview of Brand	165
2.	Combination of Aventail and Brand	166
3.	Combination of Beser and Brand.....	168
E.	RFC 2543, the Session Initiation Protocol	169
1.	Overview of RFC 2543	169
2.	Combining Aventail with RFC 2543	170
F.	Additional Prior Art Combinations	171
1.	Incorporating Beser with RFC 2401 with Brand	171
2.	Combining Aventail, RFC 2401, and RFC 2543.....	172
3.	Combining Aventail, RFC 2401, and Brand.....	173

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.