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10/949,179 | INFO-002:

SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS

PUBLIC VIEW

Application #	Confirmation #	Attorney Docket #	Patent #
10/949,179	4744	INFO-002	7,523,484 Download PDF Issued - 04/21/2009

Filing or 371 (c) date	Status
09/24/2004	Patented Case 04/01/2009

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Application data

Application type
Utility

Examiner
HOSUK SONG

Group art unit
2435

Class/subclass
726/001.000

AIA (first inventor to file)
No

Entity status
Small

Earliest publication #
US 2005-0063400 A1
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Earliest publication date
03/24/2005

Assignee for publication
-

Confirmation #
4744

Intl. registration # (Hague)
-

Intl. registration publication date
-

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Applicants

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22763 U.S. PTO 092404

EV400683813US

PTO/SB/05 (04-04)
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	PA2836US
First Inventor	Stacey C. Lum
Title	Systems and Methods of Controlling ...
Express Mail Label No.	EV 400683813 US

19270 U.S. PTO 10/949179 092404

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: **Commissioner for Patents**
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1. [✓] Fee Transmittal Form (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. [✓] Applicant claims small entity status. See 37 CFR 1.27.
3. [✓] Specification [*Total Pages* 42]
   (preferred arrangement set forth below)
   - Descriptive title of the invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. [✓] Drawing(s) (*35 U.S.C. 113*) [*Total Sheets* 5]
5. Oath or Declaration [*Total Sheets* 4]
   a. [✓] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional with Box 18 completed)*
      i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. [ ] Application Data Sheet. See 37 CFR 1.76
7. [ ] CD-ROM or CD-R in duplicate, large table or Computer Program *(Appendix)*
8. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. [ ] Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. [ ] CD-ROM or CD-R (2 copies); or
      ii. [ ] Paper
   c. [ ] Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. [✓] Assignment Papers (cover sheet & document(s))
10. [ ] 37 CFR 3.73(b) Statement *(when there is an assignee)* [✓] Power of Attorney
11. [ ] English Translation Document *(if applicable)*
12. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations
13. [ ] Preliminary Amendment
14. [✓] Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. [ ] Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. [ ] Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. [✓] Other: Check for $914.00

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No.: .....

Prior application information: *Examiner* _____ *Art Unit:* _____

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Name (Print/Type)	Steven M. Colby	*Registration No. (Attorney/Agent)*	50,250
Signature		*Date*	September 24, 2004

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 914.00

Complete if Known	
Application Number	Unknown
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Examiner Name	Unknown
Art Unit	Unknown
Attorney Docket No.	PA2836US

METHOD OF PAYMENT *(check all that apply)*

☑ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 06-0600

Deposit Account Name: Carr & Ferrell LLP

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1001	770	2001	385	Utility filing fee	385
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 385.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

			Extra Claims		Fee from below		Fee Paid
Total Claims	60	-20** =	40	x	9	=	360
Independent Claims	6	-3** =	3	x	43	=	129
Multiple Dependent						=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 489.00

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FEE CALCULATION (continued)

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1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
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1453	1,330	2453	665	Petition to revive - unintentional	
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1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	40
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	PA2836US
First Inventor	Stacey C. Lum
Title	Systems and Methods of Controlling ...
Express Mail Label No.	EV 400683813 US

19270 U.S. PTO 10/949179 092404

APPLICATION ELEMENTS

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2. [✓] Applicant claims small entity status. See 37 CFR 1.27.
3. [✓] Specification [*Total Pages* 42]
   (preferred arrangement set forth below)
   - Descriptive title of the invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. [✓] Drawing(s) (*35 U.S.C. 113*) [*Total Sheets* 5]
5. Oath or Declaration [*Total Sheets* 4]
   a. [✓] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional with Box 18 completed)*
      i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
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ACCOMPANYING APPLICATION PARTS

9. [✓] Assignment Papers (cover sheet & document(s))
10. [ ] 37 CFR 3.73(b) Statement *(when there is an assignee)* [✓] Power of Attorney
11. [ ] English Translation Document *(if applicable)*
12. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations
13. [ ] Preliminary Amendment
14. [✓] Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. [ ] Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. [ ] Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. [✓] Other: Check for $914.00

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[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No.: .....

Prior application information: *Examiner* _____ *Art Unit:* _____

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Address					
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Signature		*Date*	September 24, 2004

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Effective 10/01/2003. Patent fees are subject to annual revision.

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 914.00

Complete if Known	
Application Number	Unknown
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Examiner Name	Unknown
Art Unit	Unknown
Attorney Docket No.	PA2836US

METHOD OF PAYMENT *(check all that apply)*

☑ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

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Deposit Account Number: 06-0600

Deposit Account Name: Carr & Ferrell LLP

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1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 385.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

			Extra Claims		Fee from below		Fee Paid
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Independent Claims	6	-3** =	3	x	43	=	129
Multiple Dependent						=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
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1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
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1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
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1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

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SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	Steven M. Colby	*Registration No. (Attorney/Agent)*	50,250	*Telephone*	650-812-3424
Signature				*Date*	September 24, 2004

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Systems and Methods of Controlling Network Access

by

Stacey C. Lum

CROSSREFEREENCE TO RELATED APPLICATIONS

[0001] This application claims benefit of U.S. Provisional Patent Application No. 60/505,582 entitled "Gatekeeper Inventions for Controlling Access to a Corporate Network" and filed September 24, 2003; and of U.S. Provisional Patent Application No. 60/513,080 entitled "Gatekeeper Invention for Controlling Access to a Corporate Network Using 802.1x" and filed October 21, 2003. The disclosures of these two provisional applications are incorporated herein by reference.

BACKGROUND

Field of the Invention

[0002] The invention is in the field of computing systems and more specifically in the field of network security.

Related Art

[0003] Several approaches to controlling external access to computing networks have been developed. The goals in developing these approaches include limiting access to authorized users and assuring that computing devices employed by these users do not include malicious computing code such as viruses, worms, or Trojan horses. The need for access control has grown with users' demands for accessing secure networks over the Internet and from personal devices such as laptop computers and personal digital assistants.

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IPR2024-00675
Ex. 1502, p. 6 of 316

[0004] A first level of access control is achieved by requiring authentication of a user. This may be accomplished by requiring the user to enter a username and password or by reading a MAC address or other identifying information from an access device. In some systems, a network switch is programmed to grant access to a secure network only after proper authentication is achieved. Systems capable of using this approach include those using a proprietary VMPS protocol from Cisco Systems, Inc. of San Jose, Calif. or using a IEEE 802.1x standard protocol.

[0005] Reliance on mere user authentication includes several disadvantages. For example, there are no provisions to assure that an access device used by the authenticated user meets network security policies. The access device may have out-of-date virus software, may have security vulnerabilities, or may be otherwise compromised. Further, this approach requires that access points (e.g., network switches) support one of a specific set of access protocols. Because many access points do not support VMPS, 802.1x, or a similar protocol, implementation of this approach on a large preexisting network, such as a corporate network, may be prohibitively expensive.

[0006] A greater level of access control may be achieved by including a gatekeeper between the secure network and the access device. The gatekeeper is configured to ensure that the access device conforms to a predetermined security policy. FIG. 1 is a block diagram of a Secure Network, generally designated 100, including two instances of a Gatekeeper 110 each associated with a different instance of an Access Point 120. Secure Network 100 further includes, as an illustrative example, a network File Server 130, a Network PC (personal computer) 140 and a Printer 150 included in and connected via, a local area network designated LAN 125.

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Ex. 1502, p. 7 of 316

[0007] Each instance of Access Point 120 may include a large number of individual communication ports. These ports are used to connect through GateKeeper 110 to other elements within Secure Network 100 such as File Server 130 or LAN 125. Large corporate networks may include many instance of Access Point 120, each including hundreds of individual communication ports and being associated with an instance of GateKeeper 110.

[0008] Some instances of Access Point 120 are capable of supporting virtual local area networks (VLANs). VLANs are generated by associating communication ports within Access Point 120 with separate virtual networks. For example, one Access Device 160 may be placed on a different VLAN than another Access Devices 160 by assigning the communication ports of Access Point 120 to separate VLANs. From the point of view of these devices, the effect of a VLAN is equivalent to having a separate hardwired network.

[0009] GateKeeper 110 is configured to control access to Secure Network 100. In addition to authenticating users who wish to access Secure Network 100 using an Access Device 160, GateKeeper 110 is configured to ensure that Access Device 160 conforms to a predetermined security policy, before granting access to Secure Network 100. For example, GateKeeper 110 may make certain that Access Device 160 has up-to-date virus software and encryption protocols as proscribed by the security policy. Once GateKeeper 110 has verified that Access Device 160 satisfies the security policy, Access Device 160 is allowed to communicate through GateKeeper 110 to LAN 125.

[0010] A disadvantage of the use of GateKeeper 110, as practiced in the prior art, is that all communications between Access Device 160 and LAN 125 pass through

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GateKeeper 110. For large networks including many instances of Access Point 120, each of which may include many communication ports, this can be a significant burden. The use of one instance of GateKeeper 110 to support numerous instances of Access Device 160 is limited by bandwidth and required sophistication (e.g., cost) of GateKeeper 110. It is undesirable for GateKeeper 110 to become a limiting factor on the bandwidth of communication between instances of Access Device 160 and Secure Network 100. Further, the use of a separate GateKeeper 110 for each instance of Access Device 160 or Access Point 120 is often prohibitory expensive. Even if a separate GateKeeper is used for each Access Point 120, there is no isolation between compliant and non-compliant Access Devices 160 which are attached to the same Access Point 120.

[0011] There is, therefore, a need for improved systems and methods of controlling access to secure networks.

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SUMMARY

[0012] Systems and methods of the invention include a protected network physically or logically divided into a restricted subset and one or more less-restricted subsets. Requests from an access device for access to the less-restricted subset are first passed to the restricted subset. Elements (e.g., a gatekeeper) of the restricted subset are then used to apply security policies to the access device and if security policies are satisfied, the access device is granted access to a less-restricted subset of the protected network. The passing of access requests to the restricted subset and granting of access are accomplished by configuring and reconfiguring a communication port of an access point. After access is granted, further communication between the access device and the protected network can include access to the less restricted subset.

[0013] Typically, the less-restricted subset of the protected network and the restricted subset of the protected network are characterized by Virtual Local Area Networks (e.g., VLANs) defined within the access point and optionally by access control lists (ACL) of a router, firewall, or switch situated between the VLAN and the protected network. Different VLANs within the same access point, or within different access points, may be configured to characterize a plurality of restricted subsets and/or a plurality of less-restricted subsets within the protected network. A communication port of the access point is configured such that network traffic directed at the protected network is initially passed through a restricted VLAN rather than through a less-restricted VLAN. The restricted VLAN allows network traffic pass to the restricted subset of the protected network and is typically restricted in the sense that it only allows access to elements of

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the protected network that are configured to communicate with an access device whose security characteristics are unknown or questionable. In contrast, the less-restricted VLAN allows access to the less-restricted subset of the protected network and, in typical embodiments, to elements of both the less-restricted subset and the restricted subset. For example, the restricted VLAN allows traffic to pass to a gatekeeper configured to receive requests for access to the less-restricted VLAN, and to determine if, and to what extent, access may be allowed. To grant access, the gatekeeper sends commands to the access point in order to reconfigure a communication port to which the access device is connected. The reconfiguration typically includes reassigning the communication port from the restricted VLAN to the less-restricted VLAN.

[0014] Subsequent to reconfiguration of the communication port, network traffic can pass from the access device through the less-restricted VLAN to elements of both the less-restricted subset and (optionally) the restricted subset. This network traffic need not pass through the gatekeeper. Thus, in various embodiments of the invention a gatekeeper is used to grant access to the less-restricted subset, and after access has been granted, most network traffic does not need to pass through the gatekeeper. For example, in some embodiments, the gatekeeper only receives requests to access the less-restricted network and data regarding access to and security of the protected network. This data may be received from administrators, access devices, access points, routers, and/or other devices on the network. These limited communications with gatekeeper occur both before and after reconfiguration of the communication port, and eliminate a significant disadvantage associated with the use of prior art gatekeepers.

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[0015] Various embodiments of the invention include a computing network comprising a less-restricted subset of the computing network, access to the less-restricted subset being responsive to a first VLAN, a restricted subset of the computing network including a gatekeeper, the gatekeeper configured to receive requests for access to the less-restricted subset from an access device and to issue commands configured to allow access to the less-restricted subset, access to the restricted subset of the computing network being responsive to a second VLAN, and at least one access point including a communication port configurable for communication with less-restricted subset or alternatively for communication with only the restricted subset, configuration of the communication port including association of the communication port alternatively with the first VLAN or the second VLAN, configuration of the communication port being responsive to the commands issued by the gatekeeper. Other elements are optional.

[0016] Various embodiments of the invention include a network gatekeeper comprising at least one security policy including requirements that must be satisfied before an access device is granted access to a less-restricted subset of a protected network, a policy auditor configured to audit an access device using the at least one security policy, in response to a request to access the less-restricted subset of the protected network, the request being sent from the access device to the gatekeeper via a communication device, and an access control configured to reconfigure the communication device such that data sent from the access device can be received by the less-restricted subset of the protected network rather than merely a restricted subset of the protected network, if the audit results in a determination that the access device meets the

requirements of the at least one security policy, the restricted subset of the protected network including the gatekeeper. Other elements are optional.

[0017] Various embodiments of the invention include a method of granting access to a protected network, the method comprising receiving a request for access to a less-restricted subset of the protected network from an access device external to the protected network, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper, applying a security policy to the access device, responsive to the request, and reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network, if requirements of the security policy are satisfied. Other steps are optional.

[0018] Various embodiments of the invention include a method of granting access to a protected network, the method comprising receiving a first communication from an access device at a communication port, the communication port being configured to pass the first communication to a restricted subset of the protected network, the restricted subset including a gatekeeper configured to enforce security policy for access to a less-restricted subset of the protected network, receiving a command from the gatekeeper, the command being responsive to the received first communication and being configured to reconfigure the communication port to communicate data to the less-restricted subset of protected network, configuring the communication port to communicate data to the less-restricted subset of the protected network rather than merely the restricted subset of the protected network, responsive to the received command, and receiving a second

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communication from the access device at the communication port, the communication port now being configured to pass the second communication to the less-restricted subset of the protected network. Other steps are optional.

[0019] Various embodiments of the invention include a computing network comprising means for dividing the computing network into a restricted subset and a less-restricted subset, means for receiving a request at the restricted subset, the request being to access the less-restricted subset, means for enforcing a security policy in response to the request, and means for allowing communication to the less-restricted subset, responsive to the enforcement of the security policy, the communication to the less-restricted subset not necessarily passing through the restricted subset. Other elements are optional.

[0020] In various embodiments of the invention the restricted subset of a computing network includes elements configured to communicate with access devices having an unknown or questionable security status, and the less-restricted subset of the computing network includes those elements of the computing network not included in the restricted subset.

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BRIEF DESCRIPTIONS OF THE VARIOUS VIEWS OF THE DRAWING

[0021] FIG. 1 is a block diagram of a prior art computing network;

[0022] FIG. 2 is a block diagram of a protected network, according to various embodiments of the invention;

[0023] FIG. 3A is a block diagram showing further details of an access point, router and gatekeeper of FIG. 2, according to various embodiments of the invention;

[0024] FIG. 3B is a block diagram showing further details of the access point, router and gatekeeper of FIG. 2, after access has been granted to a less-restricted subset of a protected network, according to various embodiments of the invention; and

[0025] FIG. 4 is a flowchart illustration a method of granting access to a protected network, according to various embodiments of the invention.

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DETAILED DESCRIPTION

[0026] Access to a protected computing network is controlled by manipulating a communication port within an access point. When an access request is first received, the communication port is configured to pass the request to a restricted subset of a protected computing network. This restricted subset includes a gatekeeper configured to administer a security policy governing access to those parts of the protected computing network that are not part of the restricted subset. Those parts of the protected computing network that are not part of the restricted network are considered to be in a less-restricted subset. The less-restricted subset being less restricted relative to the restricted subset in terms of what elements may be included in each subset. If the device requesting access satisfies requirements of the security policy, then the gatekeeper sends commands to the access point in order to reconfigure the communication port through which the access request was received. The communication port is reconfigured such that further communication from the access device is passed to the less-restricted subset as well as, optionally, the restricted subset. In some embodiments, the less-restricted subset and the restricted subset are characterized by VLANs defined within the protected network.

[0027] FIG. 2 is a block diagram of a Protected Network 200, according to various embodiments of the invention. Protected Network 200 is either physically or logically divided into a Restricted Subset 205 and a Less-Restricted Subset 210. Access to Protected Network 200 is possible through an Access Point 215 (a communication device) and an optional Router 220. As is described further herein this access is under the control of a GateKeeper 225. GateKeeper 225 is configured to enforce a security policy against one or more Access Device 230 requesting access to Less-Restricted

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Subset 210. Typically, Less-Restricted Subset 210 and Restricted Subset 205 are characterized by VLAN settings within Access Point 215. Access Device 230 and Access Point 215 are connected by a communication channel such as a cable, the Internet, a telephone network, other computing network, and/or the like. In some embodiments, a network access server (not shown) is included between Access Device 230 and Access Point 215.

[0028] In various embodiments, Protected Network 200 includes a corporate network, telephone network, private network, local area network, wide area network, wireless network, communication network, government network, university network, and/or the like. Restricted Subset 205 is a subset of Protected Network 200 including at least GateKeeper 225. In some embodiments, Restricted Subset 205 further includes a DHCP (dynamic host configuration protocol service) 260 configured to assign and manage network addresses, and/or an Update Module 255 configured for providing security updates to Access Device 230. For example, in one embodiment, Restricted Subset 205 includes a server configured to function as DHCP 260 and a server configured to function as GateKeeper 225. In one embodiment, Restricted Subset 205 includes a single computing device configured to function as both Update Module 255 and GateKeeper 225.

[0029] Less-Restricted Subset 210 includes those elements of Protected Network 200 not included in Restricted Subset 205. Less-Restricted Subset 210 optionally includes devices such as a File Server 235, a Network PC 240, a Printer 245, or the like. In some embodiments, Protected Network 200 includes elements having a hierarchy of access restrictions. For example, access to Network PC 240 may require a higher level of

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authority than access to File Server 235. In this case, as described further herein, access control lists within Router 220 are optionally used to independently control access to specific devices within Less-Restricted Subset 210. Protected Network 200 may be large, including tens, hundreds, or thousands of devices. The hierarchy of access restrictions may be enforced by a hierarchical set of security policies defined using Policy Manager 250. In various embodiments, Router 220 and Access Point 215 may be considered part of Restricted Subset 205 or Less-Restricted Subset 210.

[0030] GateKeeper 225 is configured to enforce one or more security policies against an instance of Access Device 230 attempting to access Protected Network 200. The security polices may include requirements for user identification such as user names and passwords, configuration requirements relating to the configuration of Access Device 230, application requirements relating to applications running on Access Device 230, or the like. For example, in one embodiment GateKeeper 225 is configured to enforce a security policy that requires a user of Access Device 230 to provide a username and password, requires Access Device 230 to be running an operating system with specific security patches installed, requires that Access Device 230 not be connected to any insecure devices, and requires that Access Device 230 have current antivirus software installed.

[0031] In some embodiments, GateKeeper 225 is configured to enforce several alternative security policies having different levels of requirements, and to determine which security policy to enforce based on the identity of Access Device 230, the identity of a user of Access Device 230, those elements of Less-Restricted Subset 210 to which access is requested, and/or the like. For example, a request to access File Server 235 may

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have to satisfy a security policy that includes scanning Access Device 230 for malicious code, while a request to access Printer 245 may have to satisfy a security policy that includes establishing a user identity. Security policies may be stored on GateKeeper 225, on Policy Manager 250, or elsewhere accessible to Restricted Subset 205.

[0032] In some embodiments, a single instance of GateKeeper 225 is configured to manage access through more than one Access Point 215 and/or to manage access to more than one Protected Network 200. As is described further herein, management of Access Point 215 is accomplished by configuring and reconfiguring one or more communication ports within Access Point 215, and optionally setting access control lists within Router 220. In some embodiments Protected Network 200 includes a plurality of Access Point 215, a plurality of GateKeeper 225 and/or a plurality of Restricted Subset 205. Further details of GateKeeper 225 and Access Point 215 are discussed below.

[0033] Access Device 230 is a computing device configured to operate as an end point (EP) in a communication channel including Access Point 215 and Access Device 230. In various embodiments, Access Device 230 is a personal computer, a personal digital assistant, a telephone, a wireless device, a communication device such as a router, Ethernet card, wireless card, another access point, a network device, or the like. Access Device 230 is optionally identified by a MAC address, by a cookie, by data stored on Access Device 230, by a user name, an IP address, a network address, or the like.

[0034] In some embodiments, Access Device 230 is configured to execute a software and/or hardware agent for communicating with GateKeeper 225. For example, in one embodiment, Access Device 230 includes an agent configured to monitor code running on Access Device 230 and report any suspicious code to GateKeeper 225. In another

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example, Access Device 230 may include software and/or hardware configured to monitor other devices connected to Access Device 230 and to report information about these devices (e.g., their security statuses or MAC addresses) to GateKeeper 225.

[0035] Policy Manager 250 is configured to centrally create, update, and distribute security policies enforced by one or more GateKeeper 225. For example, in various embodiments, Policy Manager 250 is configured to manage passwords, to specify access privileges, to specify requirements of security policies, or the like. In some embodiments, Policy Manager 250 is configured to establish several security policies and to specify conditions under which each of the security policies should be used. For example, a security policy may be selected for use responsive to a device type of Access Device 230 and/or the elements of Protected Network 200 to which access has been requested.

[0036] Update Module 255 is configured for remotely modifying Access Device 230, or a device connected to Access Device 230, in order to improve compliance with a security policy. For example, if it is found that Access Device 230 includes out-of-date antivirus software, then Update Module 255 may facilitate updating of the antivirus software on Access Device 230. In some embodiments, Update Module 255 is configured to update an agent executing on Access Device 230. Update Module 255 is optionally included in Less-Restricted Subset 210 or external to Protected Network 200. Update Module 255 optionally operates responsive to a security policy and/or to GateKeeper 225.

[0037] FIG. 3A is a block diagram showing further details of Access Point 215, Router 220 and GateKeeper 225, according to various embodiments of the invention.

Access Point 215 is, for example, a network switch, a wireless access point, a remote access virtual private network (VPN), secure socket layer VPN, firewall, or the like. When embodied in a network switch, Access Point 215 includes a series of communication ports, designated Ports 305A-305G and configured for communication with devices such as Access Device 230, Router 220, Less-Restricted Subset 210 and/or Restricted Subset 205.

[0038] Communication received at one member of Ports 305A-305G is directed internally to another member of Ports 305A-305G via a member of VLANs 310A-310D. VLANs 310A-310D are logical associations between members of Ports 305A-305G. Typically, any members of Ports 305A-305G that are configured to be associated with the same member of VLANs 310A-310D are in bi-directional communication with each other. These associations are illustrated in FIGs. 3A and 3B by Lines 315. For example, with Ports 305A-305G configured set as shown in FIG. 3A, communication from Access Device 230 and received at Port 305A is directed to Port 305F because Port 305A and Port 305F are both associated with VLAN 310C. (In some embodiments of Access Point 215, a member of VLANs 310A-310D may be configured such that some members of Ports 305A-305G, even if associated with the same VLAN, are hidden from each other. For example, in these embodiments, both Ports 305A and 305B may be in communication with Port 305F but not with each other.)

[0039] The associations between member of Ports 305A-305G and VLANs 310A-310D are controlled by Switch Logic 317 which is accessible to other devices, for example through Port 305G. Switch Logic 317 is configured for configuring and reconfiguring members of Ports 305A-305G responsive to received commands. For

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example, by receiving an appropriate command, Switch Logic 317 is configured to reconfigure Port 305A to be associated with VLAN 310A, as illustrated in FIG. 3B below. In this configuration data received at Port 305A is directed to Port 305D via VLAN 310A, rather than to Port 305F.

[0040] As is discussed further below, the commands received by Switch Logic 317 may be generated by GateKeeper 225. This communication between GateKeeper 225 and Switch Logic 317 may be accomplished using SNMP (Simple Network Management Protocol), telnet, SSH (Secure Shell), RADIUS (Remote Authentication User Dial-In Service), EAP (Extensible Authentication Protocol), or the like.

[0041] In some embodiments, Switch Logic 317 includes a memory (not shown) configured to store the status of Ports 305A-305G and/or identification data regarding Access Device 230. This identification data may include, for example, MAC addresses, IP (internet protocol) addresses, or other data that may be used to identify Access Device 230 or data sent by Access Device 230.

[0042] Data passed through members of Ports 305DA-305G are received by Router 220 and may be communicated to other elements of Protected Network 200 responsive to access control lists (ACL 340A-340D) associated with Ports 335A-335D of Router 220. ACL 340A through 340D are each communication filters that deny or allow communication to be passed to specific elements or sets of elements within Protected Network 200. For example, ACL 340C may be an access control list that specifically allows communication to network addresses used by GateKeeper 225 and DHCP 260, and blocks communication to all other network addresses. In this case, communication through Port 335C of Router 220 would only be allowed to reach these to elements of

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Restricted Subset 205 and would not be allowed to reach elements of Less-Restricted Subset 210.

[0043] ACL 340A-340D of Router 220 may be used to limit communication from Access Device 230 to specific elements of Protected Network 200. For example, in the embodiments illustrated by FIG. 3A, if ACL 340C is configured to restrict communication to Restricted Subset 205, and Ports 305A-305C are associated with VLAN 310C as indicated by Lines 315, then communication via these member of Ports 305A-305G will be restricted to Restricted Subset 205. In typical embodiments, at least one member of ACL 340A-340D is configured to allow communication to Restricted Subset 205 but not to Less-Restricted Subset 210. As is discussed further herein, by reconfiguring a member of Ports 305A-305C to be associated with a different member of VLANs 310A-310D, not subject to the filtering of ACL 340C, communications from Access Device 230 can be directed to elements within Less-Restricted Subset 210, and optionally Restricted Subset 205, rather than merely to Restricted Subset 205.

[0044] When Access Point 215 is embodied in a wireless access point, some or all of Ports 305A-305G may be wireless connections rather than physical ports. In these embodiments, Lines 315 may represent logical associations used to control data flow between wireless connections to Access Point 215 and/or members of Ports 305A-305G that are physical communication ports. For example, in some embodiments, MAC addresses are used to distinguish wireless communications from different instances of Access Device 230 and the logical associations (represented by Lines 315) are used to direct these communications to various output channels. The output channels may be other wireless connections or physical members of Ports 305A-305G. These logical

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associations may be altered by Switch Logic 317 just as associations with members of VLANs 310A-310D are modified. Therefore, the teachings herein that use a network switch as an example of Access Point 215, apply equally to wireless access points.

[0045] Switch Logic 317 is controlled by an Access Control 320 included in GateKeeper 225. Access Control 320 is configured to send commands to Switch Logic 317 in order to reconfigure members of Ports 305A-305G. This reconfiguration includes modifying the association of members of Ports 305A-305G with different members of VLANs 310A-310D. In some embodiments, as described further herein, Access Control 320 is also configured to read a status of members of Ports 305A-305G and/or device identification data from Switch Logic 317.

[0046] Access Control 320 is responsive to a Policy Auditor 325 included in GateKeeper 225. Policy Auditor 325 is configured to receive a request for access to Less-Restricted Subset 210 from Access Device 230, to determine which of Security Policy 330A or optional Security Policy 330B applies to the current request, to perform a security audit of Access Device 230 based on the appropriate member of Security Policies 330A-330B, and to notify Access Control 320 if the audit is passed. This notice typically causes Access Control 320 to reconfigure a member of Ports 305A-305G using Switch Logic 317. For example, in some embodiments, if Security Policy 330A applies and if Access Device 230 satisfies requirements of Security Policy 330A, then Policy Auditor 325 provides a notice to Access Control 320. In response, Access Control 320 sends appropriate commands to Switch Logic 317. These commands cause changes in Port 305A, such that communication from Access Device 230 is no longer blocked by ACL 340C and can now be received by elements of Less-restricted Subset 310. In

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alternative embodiments, Security Policies 330A-330B are stored elsewhere in Protected Network 200 accessible to Policy Auditor 325. Restricted Subset 205 optionally includes one, two, or more security policy, such as Security Policies 330A-330B.

[0047] FIG. 3B is a block diagram showing further details of Access Point 215, Router 220 and GateKeeper 225 of FIG. 2, after access has been granted to elements of Less-Restricted Subset 210, according to various embodiments of the invention. Port 305A has been reconfigured to be associated with VLAN 310A rather than VLAN 310C. Because, VLAN 310A is communicatively coupled to Port 305D and Port 335A (of Router 220) via ACL 340A, any communication received at Port 305A from Access Device 230 is now subject to the filtering affects of ACL 304A rather than ACL 340C. If ACL 340A allows communication to network addresses associated with one or more elements of Less-Restricted Subset 210, the above reconfiguration of Port 305A results in a granting of access to Less-Restricted Subset 210 from Access Device 230. In some embodiments, if ACL 340A is configured to allow access to members of Less-Restricted Subset 210 it is also configured to allow access to members of Restricted Subset 205. Once Port 305A has been reconfigured to be associated with VLAN 310A, future general network traffic between Access Device 230 and Less-restricted Network 205 may pass through Ports 305A, 305D and 335A without passing through GateKeeper 225 or other elements of Restricted Subset 205. Further, communication related to access to security of Protected Network 200 may still be received by GateKeeper 225 via Port 305A. For example, GateKeeper 225 may still receive control traffic such as DNS lookups or DHCP requests, or requests to access additional elements of Protected Network 200, or requests to continue to access the Less-Restricted Subset 210.

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[0048] In some embodiments members of VLAN 310A-310D and ACL 340A-340D are optionally used to grant or bar access to different subsets of Protected Network 200, Less-Restricted Network 210, or Restricted Network 205. For example, ACL 340B may be configured to grant access to File Server 235, Policy Manager 250 and GateKeeper 225. In this case associating a member of Ports 305A-305C with VLAN 310B may provide access to these devices from an instance of Access Device 230. Granting of access to a specific region of Less-Restricted Network 205 is optionally responsive to which member of Security Policies 330A-330B has been satisfied.

[0049] FIG. 4 is a flowchart illustrating a method of granting access to Less-Restricted Subset 210 (FIG. 2), according to various embodiments of the invention. In these embodiments, an Update Port Log Step 410 and a Restrict Port Step 420, are used to prepare an open (unused) communication port on Access Point 215 for receiving a request for access to Less-Restricted Subset 210. This request is received from Access Device 230 in a Receive Access Request Step 430. In response, GateKeeper 225 authenticates a user, obtains audit data, and applies a security policy in an Authenticate User Step 440, an Obtain Audit Data Step 450 and an Apply Security Policy Step 460, respectfully. If the security policy is satisfied, then in a Reconfigure Port Step 470 GateKeeper 225 reconfigures the communication port of Access Point 215, to which Access Device 230 has connected. Finally, the reconfigured communication port is used to pass communication between Access Device 230 and one or more element of Less-Restricted Network 205 in a Communicate Step 480. Further details of these steps are discussed herein.

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[0050] In Update Port Log Step 410, Access Control 320 reads port configuration data from Access Point 215 to determine the current configuration of Ports 305A-305G. If any of Ports 305A-305G have been configured by an administrator of Access Point 215, then in Update Port Log Step 410 the administrator specified configuration(s) are stored for later use during Reconfigure Port Step 470. Typically, the read configuration data is stored in a port configuration table, for example within GateKeeper 225. Update Port Log Step 410 is optional, as discussed further herein.

[0051] In Restrict Port Step 420, Access Control 320 configures those members of Ports 305A-305G that may be accessed by external devices, such as Access Device 230. These communication ports are configured to be associated with VLAN 310C such that any data (e.g., communications) they receive from external devices are directed to Port 305F and, thus, to subject to ACL 340C. ACL 340C is configured to allow communication to, for example, DHCP 260 and GateKeeper 225. As a result, any requests for access received from external devices are prevented from reaching Less-Restricted Subset 210 and instead are received by elements of Restricted Subset 205. Restrict Port Step 420 results in a configuration such as that illustrated in FIG. 3A. In this configuration, those members of Ports 305A-305G that may be accessed by external devices include Port 305A, Port 305B and Port 305C. As a result of Restrict Port Step 420, these members of Ports 305A-305G are associated with VLAN 310C and communicatively coupled to Protected Network 200 through ACL 340C. Restrict Port Step 420 is optional, for example when members of Ports 305A-305C have been configured to communicate data to elements of Restricted Subset 205 by an administrator of Access Point 215.

[0052] In Receive Access Request Step 430, a request for access to Less-Restricted Subset 210 is received at one of Ports 305A-305C configured to pass data to DHCP 260 and Gatekeeper 225. Typically, this request is received from an external device such as Access Device 230. Because Port 305A, Port 305B and Port 305C are configured to pass data to DHCP 230 and Gatekeeper 225, the received access request passes through Access Point 215 and is received by either DHCP 230 or Gatekeeper 225 In typical embodiments, an initial access request is first acknowledged by DHCP 230 which assigns a dynamic network address (e.g., IP address) to Access Device 230 and returns, to Access Device 230, a network address associated with GateKeeper 225 or more specifically Policy Auditor 325. Using this network address, Access Device 230 may engage in further communication with GateKeeper 225 or Policy Auditor 325. In some embodiments, DHCP 260 and instances of GateKeeper 225 are associated with a local domain name service configured to provide network addresses associated with a particular instance of GateKeeper 225 configured to manage (reconfigure) the particular Access Point 215 to which Access Device 230 is connected.

[0053] In optional Authenticate User Step 440, Policy Auditor 325 authenticates the identity of Access Device 230 and/or a user of Access Device 230. This authentication may be required by a member of Security Policies 330A-330B. In various embodiments, the authentication may include receipt of a user name and password, receipt of a MAC address, reading of data stored on Access Device 230, communication with an agent executing on Access Device 230, or the like.

[0054] In optional Obtain Audit Data Step 450, Policy Auditor 325 collects further data to perform a security audit of Access Device 230 responsive to Security Policy 330A

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or Security Policy 330B. In some embodiments, Obtain Audit Data Step 450 includes sending system data requests to Access Device 230, Router 220, or Access Point 215. The requested system data may include, for example, operating system status (version, updates, etc.), antivirus software status, information concerning devices connected to Access Device 230, Windows registry information, MAC address, IP addresses, cookies, status of applications executing on Access Device 230, or the like.

[0055] In some embodiments, Obtain Audit Data Step 450 is facilitated by an agent running on Access Device 230. For example, Access Device 230 may include a software agent configured to monitor local security and to report results of this monitoring to Policy Auditor 325.

[0056] In Apply Security Policy Step 460, a security audit of Access Device 230 is performed by Policy Auditor 325 responsive to a member of Security Policy 330A or Security Policy 330B. The particular member of Security Policy 330A or Security Policy 330B used to perform the audit may be responsive to the identity of Access Device 230, an identity of a user of Access Device 230, a part of Less-Restricted Subset 210 to which access is requested, or the like. The security audit typically includes determining if Access Device 230 satisfies requirements of the security policy. The security audit optionally includes active probing, scanning, and/or collection of third party data regarding Access Device 230. In some embodiments, Authenticate User Step 440 is considered part of the security policy audit.

[0057] As is discussed further herein, in some embodiments, satisfaction off all the requirements of a particular security policy results in access to Less-Restricted Subset 210, while satisfaction of a subset of the requirements associated with the particular

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security policy is considered partial satisfaction of the security policy and may result in a more limited access to Less-Restricted Subset 210.

[0058] In some embodiments, Apply Security Policy Step 460 includes using Update Module 255 (FIG. 2) to overcome deficiencies in the security of Access Device 230. For example, in one embodiment, Apply Security Policy Step 460 includes updating antivirus software on Access Device 230 in response to a security audit that determined that the current antivirus software is out-of-date.

[0059] In Reconfigure Port Step 470, the communication port of Access Point 215, to which Access Device 230 is communicatively connected, is reconfigured responsive to a successful security audit in Apply Security Policy Step 460. This communication port is reconfigured such that data received by the communication port is passed to one or more elements of Less-Restricted Subset 210 rather than merely elements of Restricted Subset 205 (e.g., GateKeeper 225). For example, FIG. 3A shows Port 305A prior to execution of Reconfigure Port Step 470 and FIG. 3B shows Port 305A following execution of Reconfigure Port Step 470. In FIG. 3B, Port 305A is associated with VLAN 310A and, thus, communicatively coupled through Port 305D to Protected Network 200 subject to the restrictions of ACL 340A. The restrictions of ACL 340A allow access to all or part of Less-Restricted Subset 210, as well as optionally all or part of Restricted Subset 205.

[0060] In typical embodiments, reconfiguration of Port 305A is accomplished by sending commands from Access Control 320 to Switch Logic 317. These commands or responses to requests from Switch Logic 317 are optionally sent via SNMP, telnet, SSH, RADIUS, EAP, or the like, and are responsive to data received in Authenticate User Step 440 and Obtain Audit Data Step 450, and/or to the security audit performed in Apply

Security Policy Step 460. In response to these commands, Switch Logic 317 configures Port 305A to be associated with VLAN 310A and, thus, communicate through Port 305D.

[0061] While access control lists (ACL 340A-340D) within Router 220 are typically configured prior to Receive Access Request Step 430, in some embodiments, Reconfigure Port Step 470 further includes configuring one or more members of ACL 340A-340D. In alternative embodiments, reconfiguring of members of ACL 340A-340D may be used to grant access to elements of Less-Restricted Subset 210 as an alternative to associating members of Ports 305A-305G to different members of VLANs 310A-310D.

[0062] Access Control 320 may selectively grant access to different parts of Protected Network 200 if ACL 340B is configured to allow access to different elements within Protected Network 200, than ACL 340A is configured. For example, in one embodiment, Access Device 230 will received access to all of Less-Restricted Subset 210 if Port 305A is associated with VLAN 310A, or alternatively Access Device 230 will receive access to only a part of Less-Restricted Subset 210 if Port 305A is associated with VLAN 310B. When Port 305A is associated with VLAN 310A, as in FIG. 3B, communication from Access Device 230 is directed through Port 335A of Router 220 subject to ACL 340A and, thus, may access only those elements of Protected Network 200 allowed by ACL 340A. When Port 305A is associated with VLAN 310B, communication from Access Device 230 is instead passed through Port 335B subject to ACL 340B and may access only those elements of Protected Network 200 permitted by ACL 340B. A selection between granting access to a first or second part of Protected Network 200 can, therefore, be made using Access Control 320. The selection is optionally responsive to the security policy used in Apply Security Policy Step 460, to

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whether the security policy was fully or partially satisfied, to data obtained in Authenticate User Step 440 or Obtain Audit Data Step 450, or the like.

[0063] As illustrated in the above example, a member of Ports 305A-305G, through which Access Device 230 is requesting access, may be reconfigured to more than one alternative setting in Reconfigure Port Step 470. For example, in various embodiments a communication port may be reconfigured to a prior administrator specified configuration previously read in Update Port Log Step 410, reconfigured to be linked to a specific port responsive to the request received in Receive Access Request Step 430, reconfigured to grant access to a particular part of Less-Restricted Subset 210, reconfigured to a default setting, and/or the like. By reading administrator specified port configurations in Update Port Log Step 410 and reconfiguring communication ports back to these read configurations in Reconfigure Port Step 470, an administrator may reconfigure Protected Network 200 without concern that their specifications will be lost or permanently overwritten by methods of the invention. In embodiments wherein a communication port is not reconfigured to a previous administrator specified configuration, Update Port Log Step 410 is optional.

[0064] In Communicate Step 480, communication occurs between Access Device 230 and elements of Less-Restricted Subset 210 via the communication port reconfigured in Reconfigure Port Step 470. However, in some embodiments, ACL 340A is configured to allow access to GateKeeper 225 as well as Less-Restricted Subset 210. Thus, general network traffic does not need to pass through GateKeeper 225, while communication regarding security of Protected Network 200 is optionally received by GateKeeper 225. Further communication between Access Device 230 and GateKeeper 225 may provide a

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variety of advantages. For example, further communication between GateKeeper 225 and an agent executing on Access Device 230 may allow for continuing audits of security aspects of Access Devices 230. These audits may be similar to those performed in Apply Security Policy Step 460. In one embodiment, ACL 340A is configured to grant access to all of Protected Network 200.

[0065] Further communication between GateKeeper 225 and an agent executing on Access Device 230 may also allow for a user of Access Device 230 to explicitly logoff Protected Network 200. An explicit logoff will result in reconfiguration of Port 305A such that access is again restricted to Restricted Subset 205. A logoff may alternatively be responsive to a timeout of communication with Access Device 230, a SNMP trap message indicating a connection has been broken, or the like.

[0066] Several embodiments are specifically illustrated and/or described herein. However, it will be appreciated that modifications and variations are covered by the above teachings and within the scope of the appended claims without departing from the spirit and intended scope thereof. For example, the teachings herein may be applied to embodiments wherein Access Point 215 is a wireless access point and MAC addresses, or the like, are used instead of VLANs to separate traffic from different instances of Access Device 230. It is, thus, anticipated that network management techniques other than VLANs may be used to distinguish Less-Restricted Subset 210 from Restricted Subset 205. In some embodiments, various aspects of GateKeeper 225 may be incorporated into Access Point 215 and/or Router 220. GateKeeper 225 and Policy Manager 250 are each optionally implemented on a plurality of computing devices within Restricted Subset 205.

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[0067] In some embodiments, GateKeeper 225 uses DHCP 260 to assign IP addresses from a restricted IP address range depending on the compliance of Access Device 230 to security policies 330A-330B. GateKeeper 225 inserts DHCP options and/or modifies the IP source addresses of DHCPDISCOVER and DHCPREQUEST packets, based on the compliance of the Access Device 230 to security policies 330A-330B. DHCP 260 is configured to provide an address from the restricted address range or the less-restricted address range based on the source address and/or options present in the DHCP request or discover packets that have been modified by GateKeeper. In some embodiments, the insertion of DHCP options and/or modification of IP source addresses may be used to characterize restricted and less-restricted subnets, rather then configuring port associations with VLANs as discussed herein.

[0068] The embodiments discussed herein are illustrative of the present invention. As these embodiments of the present invention are described with reference to illustrations, various modifications or adaptations of the methods and or specific structures described may become apparent to those skilled in the art. All such modifications, adaptations, or variations that rely upon the teachings of the present invention, and through which these teachings have advanced the art, are considered to be within the spirit and scope of the present invention. Hence, these descriptions and drawings should not be considered in a limiting sense, as it is understood that the present invention is in no way limited to only the embodiments illustrated.

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CLAIMS

I Claim:

1. A computing network comprising:

a less-restricted subset of the computing network, access to the less-restricted subset being responsive to a first VLAN;

a restricted subset of the computing network including a gatekeeper, the gatekeeper configured to receive requests for access to the less-restricted subset from an access device and to issue commands configured to allow access to the less-restricted subset in response to a security policy, access to the non-restricted subset of the computing network being responsive to a second VLAN; and

at least one access point including a communication port alternatively configurable for communication with less-restricted subset or for communication with only the restricted subset, configuration of the communication port including association of the communication port alternatively with the first VLAN or the second VLAN, configuration of the communication port being responsive to the commands issued by the gatekeeper.

2. The computing network of claim 1, wherein the restricted subset of the computing network includes elements configured to communicate with access devices having an unknown security status, and the less-restricted subset of the computing network includes those elements of the computing network not included in the restricted subset.

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3. The computing network of claim 1, further including a router configured to limit access to only the restricted subset using an access control list.

4. The computing network of claim 1, wherein association of the communication port with the first VLAN allows communication with elements of both the restricted subset and the less-restricted subset.

5. The computing network of claim 1, wherein the gatekeeper is further configured to enforce a security policy regarding access to the less-restricted subset.

6. The computing network of claim 1, wherein the gatekeeper is further configured to update the access device using an update module.

7. The computing network of claim 1, wherein the gatekeeper is further configured to obtain system data from the access device.

8. The computing network of claim 7, wherein the gatekeeper is further configured to use the system data to determine if the access device meets requirements of a security policy, and to issue the commands responsive to this determination.

9. The computing network of claim 1, wherein the gatekeeper is further configured
to read an administrator specified configuration of the communication port from the at least one access point,
to store the read administrator specified configuration in a port configuration table, and

to issue commands configured to prevent access to the less-restricted subset of the computing network via the communication port.

10. The computing network of claim 9, wherein the gatekeeper is further configured to use the stored administrator specified configuration when issuing commands configured to allow access to the less-restricted subset.

11. The computing network of claim 1, wherein the gatekeeper is further configured to select from a plurality of security policies.

12. The computing network of claim 1, wherein the gatekeeper is further configured to select from a hierarchical set of security policies, the hierarchical set configured to provide access to different parts of the less-restricted subset of the computing network.

13. The computing network of claim 1, wherein the gatekeeper is further configured to control access to the less-restricted subset of the computing network by configuring communication ports on a plurality of access points, the at least one access point being a member of the plurality of access points.

14. The computing network of claim 1, wherein the gatekeeper is further configured to control access to a plurality of protected networks, the computing network being a member of the plurality of protected networks.

15. The computing network of claim 1, wherein the gatekeeper is further configured to read identification data concerning the access device from the at least one access

point and to use the read identification data to identify the access device or to identify data sent by the access device.

16. The computing network of claim 1, wherein the security policy includes an audit of the access device.

17. A network gatekeeper comprising:

at least one security policy including requirements that must be satisfied before an access device is granted access to a less-restricted subset of a protected network;

a policy auditor configured to audit then access device using the at least one security policy, in response to a request to access the less-restricted subset of the protected network, the request being sent from the access device to the gatekeeper via a communication device; and

an access control configured to reconfigure the communication device such that data sent from the access device is received by the less-restricted subset of the protected network rather than merely a restricted subset of the protected network, if the audit results in a determination that the access device meets the requirements of the at least one security policy, the restricted subset of the protected network including the gatekeeper.

18. The network gatekeeper of claim 17, wherein the restricted subset of the protected network includes elements configured to communicate with the access device having a questionable security status, and the less-restricted subset of the

protected network includes those elements of the protected network not included in the restricted subset.

19. The network gatekeeper of claim 17, wherein the at least one security policy is responsive to an identity of the access device.

20. The network gatekeeper of claim 17, wherein the at least one security policy is selected by the policy auditor responsive to a part of the less-restricted subset of the protected network to which access is requested.

21. The network gatekeeper of claim 17, wherein the audit is responsive to antivirus software executing on the access device.

22. The network gatekeeper of claim 17, wherein the audit is responsive to an operating system, a version of the operating system, or patches applied to the operating system, executing on the access device.

23. The network gatekeeper of claim 17, wherein the policy auditor is configured to request data from an agent on the access device.

24. The network gatekeeper of claim 17, wherein the communication device includes a wireless access point.

25. The network gatekeeper of claim 17, wherein the communication device includes a wireless access point configured to support an 802.1x standard.

26. The network gatekeeper of claim 17, wherein the communication device includes a network switch.

27. The network gatekeeper of claim 17, wherein the communication device includes a router.

28. The network gatekeeper of claim 17, wherein the reconfiguration of the communication device includes reconfiguring a port on the communication device such that data received at the port is passed on to elements of both the less-restricted subset of the protected network and the restricted subset of the protected network.

29. The network gatekeeper of claim 28, wherein reconfiguring the port includes returning the port to an administrator specified setting.

30. The network gatekeeper of claim 28, wherein reconfiguring the port includes sending one or more commands from the gatekeeper to the communication device.

31. A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request; and reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied.

32. The method of claim 31, further including reading an administrator specified configuration of the communication port from the access point, and storing the read administrator specified configuration.

33. The method of claim 31, further including configuring the communication port such that requests for access to the less-restricted subset are communicated to the gatekeeper.

34. The method of claim 31, further including authenticating a user of the access device.

35. The method of claim 31, further including obtaining system data from the access device, and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy.

36. The method of claim 35, wherein the system data includes antivirus software version data.

37. The method of claim 31, further including communicating between the gatekeeper and an agent executing on the access device to obtain system data from the access

device, and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy.

38. The method of claim 37, wherein the system data includes information regarding devices connected to the access device.

39. The method of claim 31, further including communicating between the gatekeeper and an agent executing on the access device to monitor security status of the access device after reconfiguring the communication port for communicating between the access device and the less-restricted subset.

40. The method of claim 39, wherein the system data includes information regarding computing code executing on the access device.

41. The method of claim 31, further including obtaining identification information regarding the access device from the access point.

42. The method of claim 31, further including selecting the security policy from among a plurality of security policies.

43. The method of claim 42, wherein selecting the security policy is responsive to an identity of the access device or an identity of a user of the access device.

44. The method of claim 42, wherein selecting the security policy is responsive to an identity of elements within the less-restricted subset of the protected network to which access is requested.

45. The method of claim 31, further including updating the access device if requirements of the security policy are not satisfied.

46. The method of claim 31, wherein the access point is a network switch.

47. The method of claim 31, wherein the access point is a wireless access point.

48. The method of claim 31, wherein the access point is a remote access virtual private network.

49. The method of claim 31, wherein the gatekeeper is accessible to elements of the less-restricted subset of the protected network.

50. The method of claim 31, wherein the restricted subset of the protected network is characterized by an access control list.

51. The method of claim 50, wherein access to the restricted subset of the protected network is responsive to a VLAN configured to communicate with the protected network subject to the access control list.

52. The method of claim 31, wherein the gatekeeper and the access point are embodied in separate devices.

53. A method of granting access to a protected network, the method comprising:

receiving a first communication from an access device at a communication port, the communication port being configured to pass the first communication

to a restricted subset of the protected network, the restricted subset including a gatekeeper configured to enforce security policy for access to a less-restricted subset of the protected network;

receiving a command from the gatekeeper, the command being responsive to the received first communication and being configured to reconfigure the communication port to communicate data to the less-restricted subset of protected network;

configuring the communication port to communicate data to the less-restricted subset of the protected network rather than merely the restricted subset of the protected network, responsive to the received command; and

receiving a second communication from the access device at the communication port, the communication port now being configured to pass the second communication to the less-restricted subset of the protected network.

54. The method of claim 53, wherein configuring the communication port includes association the communication port with a VLAN.

55. The method of claim 53, wherein the communication port is limited to communicating with the restricted subset of the protected network by an access control list, when the first communication is received.

56. The method of claim 55, wherein the communication port is limited to communicating with elements of protected network by another access control list, when the second communication is received.

57. A computing network comprising:

means for dividing the computing network into a restricted subset and a less-restricted subset;

means for receiving a request at the restricted subset, the request being to access the less-restricted subset;

means for enforcing a security policy in response to the request; and

means for allowing communication to the less-restricted subset, responsive to the enforcement of the security policy, the communication to the less-restricted subset not necessarily passing through the restricted subset.

58. The computing network of claim 57, wherein the restricted subset of the computing network includes elements configured to communicate with access devices having an unknown security status, and the less-restricted subset of the computing network includes those elements of the computing network not included in the restricted subset.

59. A computer readable medium including computer code configured for controlling access to a computer network, the computer code comprising:

a code segment configured for receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

a code segment configured for applying a security policy to the access device, responsive to the request; and

a code segment configured for reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied.

60. The computer readable medium of claim 59, wherein the computer code further includes a code segment configured for reading an administrator specified configuration of the communication port from the access point, and storing the read administrator specified configuration.

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ABSTRACT

A new approach to network security includes manipulating an access point such that an initial communication from an external device is passed to a restricted subset of a computing network including a gatekeeper. The gatekeeper is configured to enforce a security policy against the external device before granting access to a less-restricted subset of the computing network. If requirements of the security policy are satisfied, then the gatekeeper reconfigures the access point such that further communication from the external device may be received by elements of the less-restricted subset. Enforcement of the security policy optionally includes performing a security audit of the external device.

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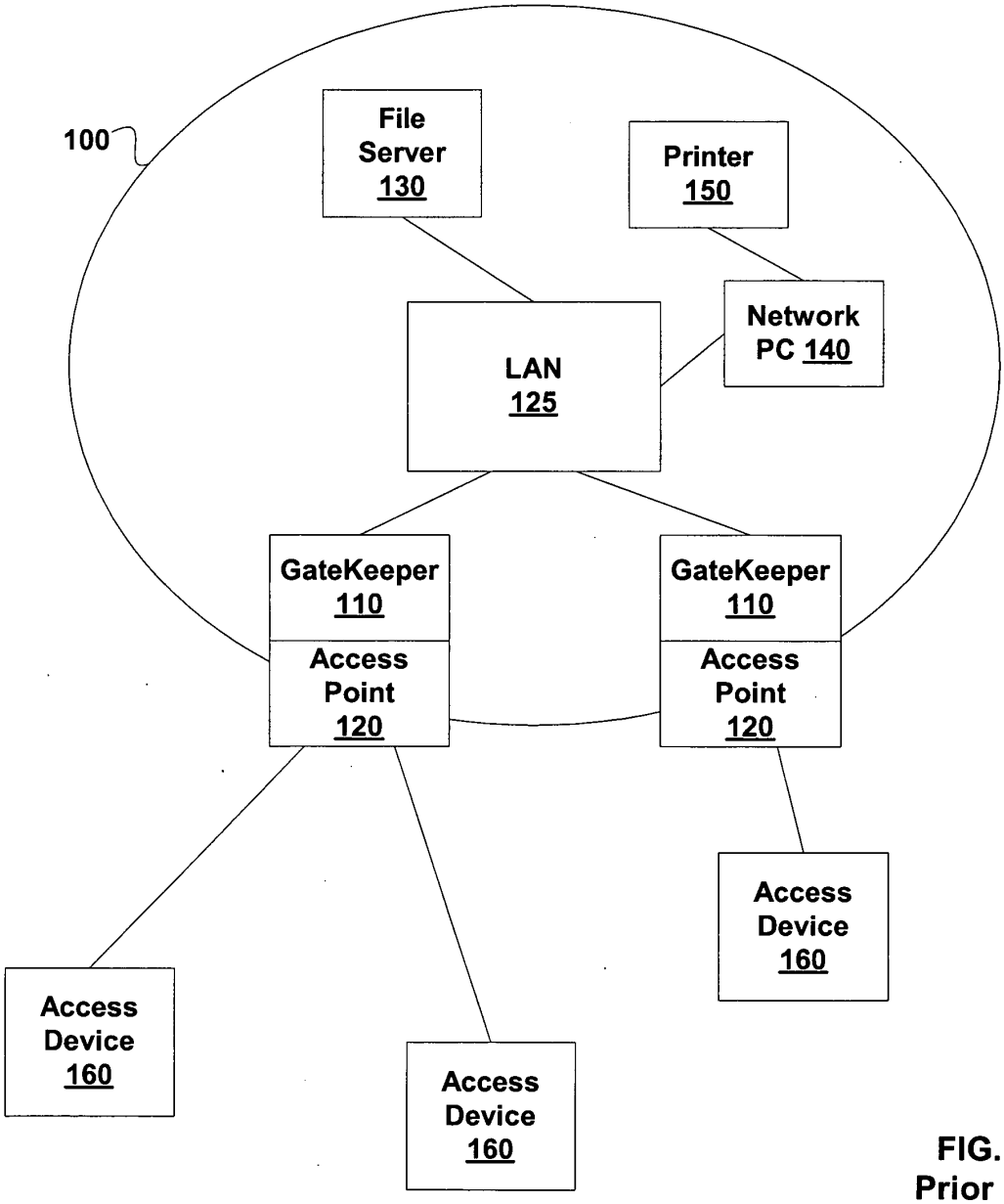

FIG. 1
Prior Art

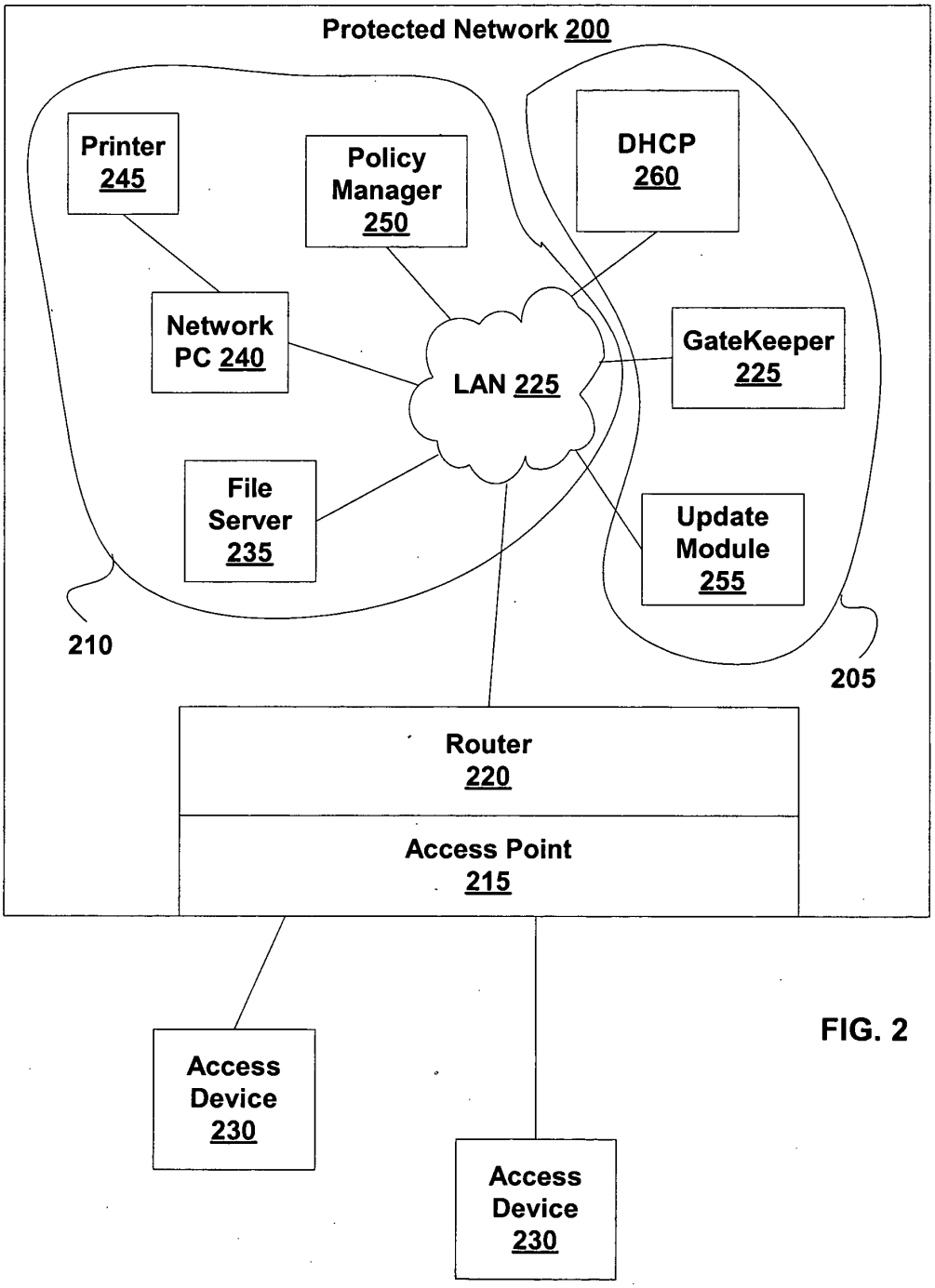
Protected Network 200
Printer 245
Policy Manager 250
DHCP 260
Network PC 240
LAN 225
GateKeeper 225
File Server 235
Update Module 255
210
205
Router 220
Access Point 215
Access Device 230
Access Device 230

FIG. 2

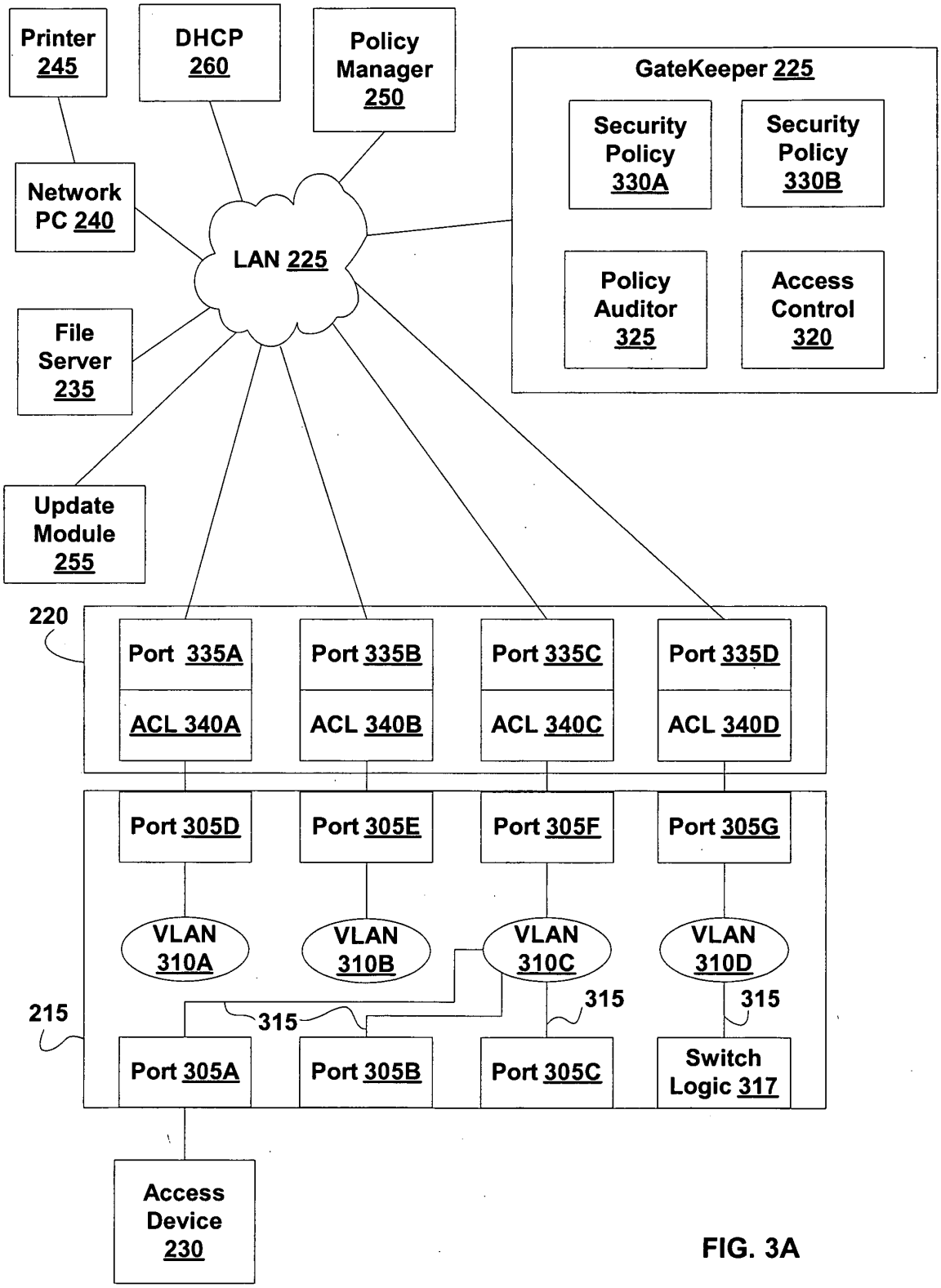
Printer 245
DHCP 260
Policy Manager 250
GateKeeper 225
Security Policy 330A
Security Policy 330B
Policy Auditor 325
Access Control 320
Network PC 240
LAN 225
File Server 235
Update Module 255
220
Port 335A
Port 335B
Port 335C
Port 335D
ACL 340A
ACL 340B
ACL 340C
ACL 340D
Port 305D
Port 305E
Port 305F
Port 305G
VLAN 310A
VLAN 310B
VLAN 310C
VLAN 310D
315
315
315
215
Port 305A
Port 305B
Port 305C
Switch Logic 317
Access Device 230

FIG. 3A

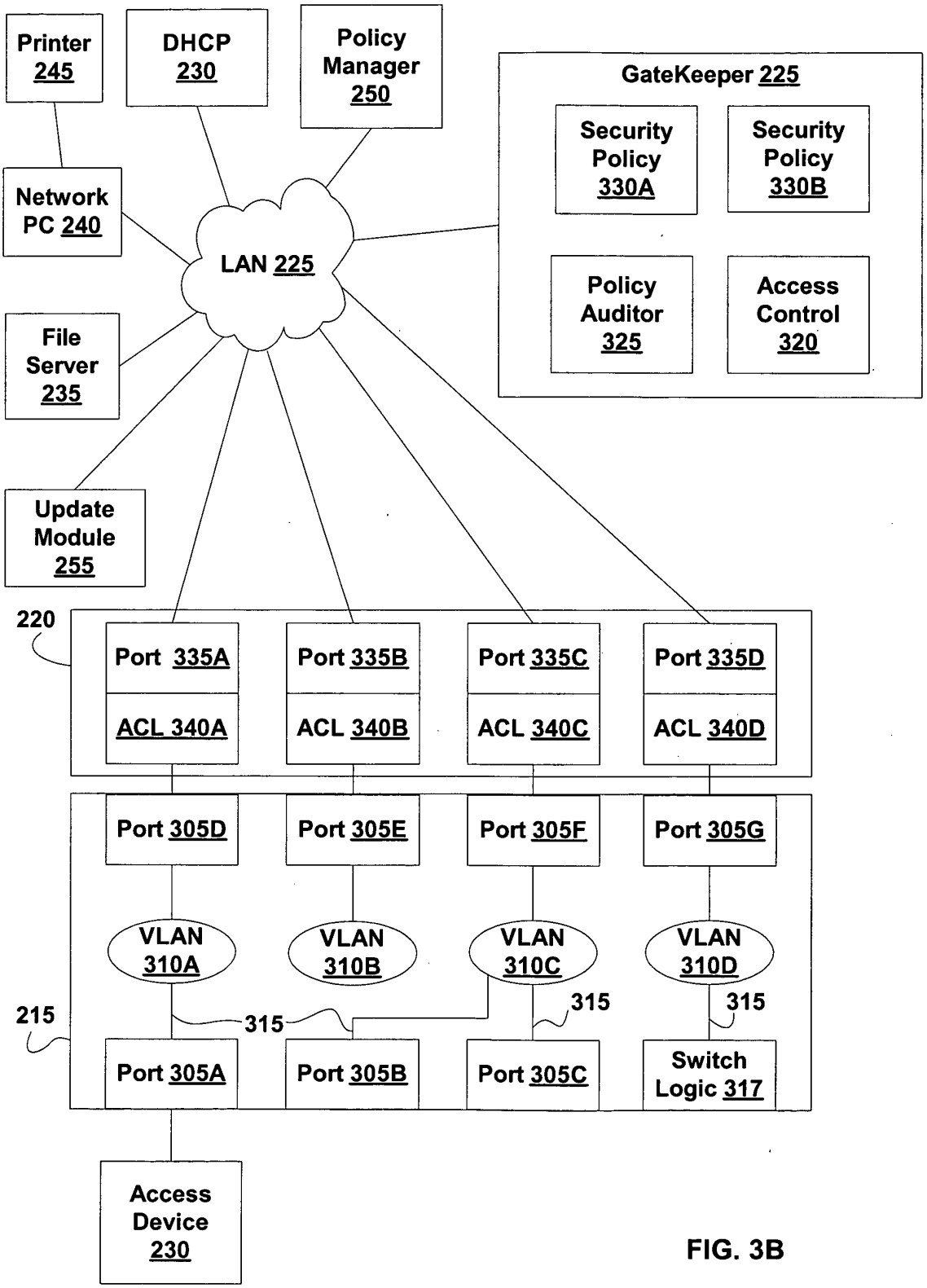
Printer 245
DHCP 230
Policy Manager 250
GateKeeper 225
Security Policy 330A
Security Policy 330B
Network PC 240
LAN 225
Policy Auditor 325
Access Control 320
File Server 235
Update Module 255
220
Port 335A
Port 335B
Port 335C
Port 335D
ACL 340A
ACL 340B
ACL 340C
ACL 340D
Port 305D
Port 305E
Port 305F
Port 305G
VLAN 310A
VLAN 310B
VLAN 310C
VLAN 310D
315
315
315
215
Port 305A
Port 305B
Port 305C
Switch Logic 317
Access Device 230

FIG. 3B

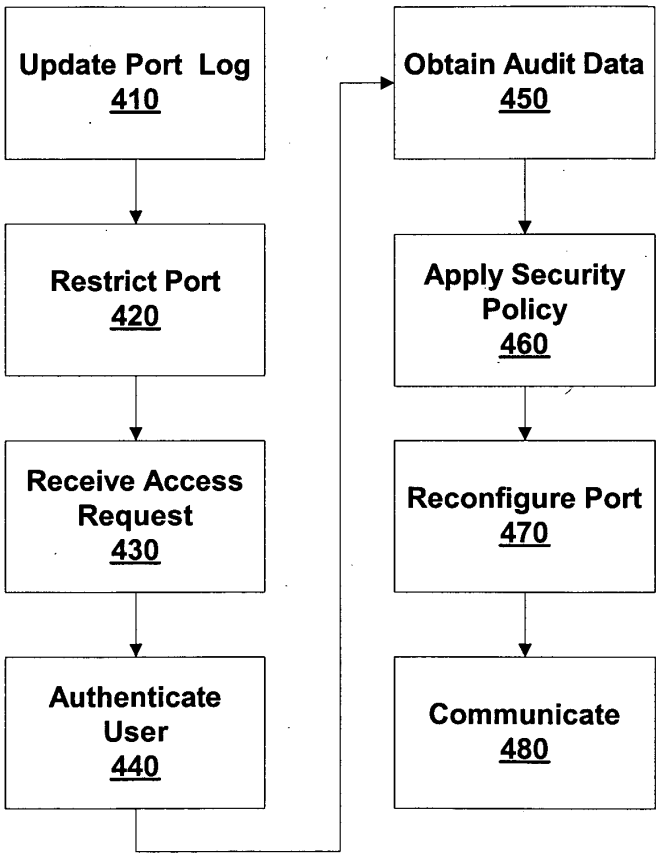
Update Port Log
410
Restrict Port
420
Receive Access Request
430
Authenticate User
440
Obtain Audit Data
450
Apply Security Policy
460
Reconfigure Port
470
Communicate
480

FIG. 4

ATTORNEY'S DOCKET NO.: PA2836US

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled

"Systems and Methods of Controlling Network Access"

the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) or (f) or §365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s):

Number	Country	Foreign Filing Date	Priority Claimed?	Certified Copy Attached?
(Number)	(Country)	(MM/DD/YYYY)	☐ Yes ☐ No	☐ Yes ☐ No
(Number)	(Country)	(MM/DD/YYYY)	☐ Yes ☐ No	☐ Yes ☐ No

I hereby claim the benefit under Title 35, United States Code §119(c) of any United States provisional application(s) listed below.

Prior Provisional Applications:

60/505,582 (Application Number)	September 24, 2003 (Filing Date)
60/513,080 (Application Number)	October 21, 2003 (Filing Date)

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Prior U.S. or PCT Applications Designating the U.S.:

(Application Number)	(Filing Date)	(Status -- patented, pending, abandoned)
(Application Number)	(Filing Date)	(Status -- patented, pending, abandoned)

POWER OF ATTORNEY: I hereby appoint the attorney(s) and/or agent(s) associated with the customer number **22830** to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

SEND ALL CORRESPONDENCE TO:

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FAX: (650) 812-3444

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor: Stacey C. Lum Citizenship: U.S.A.

Print First Name, Middle Name or Initial (if applicable), Last Name

Inventor's signature: _____ Dated: 9/24/04

(Permanent ink only) *(Date of Signature)*

Mailing Address: 170 S. Whisman Road, Suite B, Mountain View, California 94041

(Where the inventor customarily receives mail: Number, Street, City, State, Zip Code)

Residence Address: Los Altos, California

(if the inventor lives at a location different than his/her mailing address)

37 CFR §1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) Prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patent-ably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability. A *prima facie* case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

(e) In any continuation-in-part application, the duty under this section includes the duty to disclose to the Office all information known to the person to be material to patentability, as defined in paragraph (b) of this section, which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Docket Number
10949179

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	60	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	60 minus 20=	* 40
INDEPENDENT CLAIMS	6 minus 3 =	* 3
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	385.00	OR	BASIC FEE	770.00
X$ 9=	360	OR	X$18=	
X43=	129	OR	X86=	
+145=		OR	+290=	
TOTAL	874	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1)		(Column 2)	(Column 3)
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1)		(Column 2)	(Column 3)
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1)		(Column 2)	(Column 3)
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

FORM PTO-875 (Rev. 10/03)

Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

09/28/2004 AADOF01 00000018 10949179

01 FC:2001	385.00	OP
02 FC:2201	129.00	OP
03 FC:2202	360.00	OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 489-267/69033

OIPE JC160
APR 0 4 2005
PATENT & TRADEMARK OFFICE

IFW

PTO/SB/21 (09-04)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2661
Examiner Name	Unknown
Attorney Docket Number	PA2836US
Total Number of Pages in This Submission	7

ENCLOSURES *(Check all that apply)*

- [ ] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [x] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below):

1) Confirmation Postcard;
2) PTO/SB/08 (x2);
3) Duplicate of IDS

Remarks

Total page number does not include postcard.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Carr & Ferrell LLP Cust. No. 22830		
Signature			
Printed name	Steven M. Colby		
Date	March 31, 2005	Reg. No.	50,250

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Steven M. Colby, Reg. No. 50,250	Date	March 31, 2005

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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OIPE JC165
APR 0 4 2005
PATENT & TRADEMARK OFFICE

IN THE

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):	Stacey C. Lum
APPLICATION NO.:	10/949,179
FILED:	September 24, 2004
TITLE:	Systems and Methods of Controlling Network Access
EXAMINER:	Unknown
GROUP ART UNIT:	2661
ATTY.DKT.NO.:	PA2836US

MAIL STOP AMENDMENT
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT
Under 37 C.F.R. §§ 1.56, and 1.97-1.98

SIR:

Pursuant to the provisions of 37 C.F.R. §§ 1.56 and 1.97-98 of the Rules of Practice in Patent Cases, enclosed herewith is form PTO-SB-08 listing a reference. The Examiner is requested to make this reference of official record in the application. The reference cited may be material to examination of the application and is submitted in compliance with Applicant(s)'s duty of disclosure as defined by 37 C.F.R. § 1.56.

{00142038v1}

No representation is made or intended as to the completeness of this list, nor is the inclusion of any reference on this list an admission that it is prior art or pertinent to this application.

Applicants believe no fee is due with this submission. If a fee is due, however, the Commissioner is hereby authorized to charge any necessary fee to Account Number 06-0600. A copy of this statement is submitted in duplicate for this purpose.

Respectfully submitted,
Stacey C. Lum

Dated: March 31, 2005

By: _____

Steven M. Colby, Reg. No. 50,250
Carr & Ferrell *LLP*
2200 Geng Road
Palo Alto, CA 94303
TEL: (650) 812-3400
FAX: (650) 812-3444

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment Commissioner for Patents, Alexandria, VA 22313-1450, on the date printed below:

Dated: March 31, 2005

By: _____
Steven M. Colby, Reg. No. 50,250

{00142038v1}

OIPE JC106
APR 0 4 2005
PATENT & TRADEMARK OFFICE

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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2661
Examiner Name	Unknown
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5,968,176	10-19-1999	Nessett et al.	
		US-			
		US-			
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		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	

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IN THE

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):	Stacey C. Lum
APPLICATION NO.:	10/949,179
FILED:	September 24, 2004
TITLE:	Systems and Methods of Controlling Network Access
EXAMINER:	Kim Y. Vu
GROUP ART UNIT:	2135
ATTY.DKT.NO.:	PA2836US

INFORMATION DISCLOSURE STATEMENT
Under 37 C.F.R. §§ 1.56, and 1.97-1.98

SIR:

Pursuant to the provisions of 37 C.F.R. §§ 1.56 and 1.97-98 of the Rules of Practice in Patent Cases, enclosed herewith is form PTO-SB-08 listing several references, copies of the foreign patents and non patent literature are enclosed. The Examiner is requested to make these references of official record in the application. The references cited may be material to examination of the application and are submitted in compliance with Applicants' duty of disclosure as defined by 37 C.F.R. § 1.56.

No representation is made or intended as to the completeness of this list, nor is the inclusion of any reference on this list an admission that it is prior art or pertinent to this application.

Applicants believe no fee is due with this submission. If a fee is due, however, the Commissioner is hereby authorized to charge any necessary fee to Account Number 06-0600. A copy of this statement is submitted in duplicate for this purpose.

Respectfully submitted,
Stacey C. Lum

Dated: July 10, 2007

By: _____

Steven M. Colby, Reg. No. 50,250
Carr & Ferrell *LLP*
2200 Geng Road
Palo Alto, CA 94303
TEL: (650) 812-3400
FAX: (650) 812-3444

IN THE

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):	Stacey C. Lum
APPLICATION NO.:	10/949,179
FILED:	September 24, 2004
TITLE:	Systems and Methods of Controlling Network Access
EXAMINER:	Kim Y. Vu
GROUP ART UNIT:	2135
ATTY.DKT.NO.:	PA2836US

INFORMATION DISCLOSURE STATEMENT
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Respectfully submitted,
Stacey C. Lum

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PTO/SB/08A (09-06)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 3

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,834,414	12-28-2004	Chiu	
		US- 2,519,435	08-22-1950	Byrd, Jr.	
		US- 3,100,664	08-13-1963	Duval	
		US- 1,830,383	11-03-1931	Bos	
		US- 1,860,326	05-24-1932	Jackson	
		US- 2,131,067	09-27-1938	Paden	
		US- 2,247,592	07-01-1941	Swift	
		US- 2,731,056	01-17-1956	Anson	
		US- 3,701,557	10-31-1972	Centofante	
		US- 5,010,622	04-30-1991	Morita	
		US- 4,181,339	01-01-1980	Rigsby	
		US- 4,951,984	08-28-1990	Huang	
		US- 5,701,635	12-30-1997	Hawkes	
		US- 5,944,368	08-31-1999	Hastings	
		US- 5,606,668	02-25-1997	Shwed	
		US- 6,044,402	03-28-2000	Jacobson et al.	
		US- 6,304,973	10-16-2001	Williams	
		US- 6,393,484	05-21-2002	Massarani	
		US- 6,363,489	05-26-2002	Comay et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 2006/029217 A2	03-16-2006	Swan Labs Corporation		

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 3

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,745,333	06-01-2004	Thomsen	
		US- 2002/0010869	01-24-2002	Kim	
		US- 2003/0023880	01-30-2003	Edwards et al.	
		US- 2003/0046586	03-06-2003	Bheemarasetti et al.	
		US- 2003/0126464	07-03-2003	McDaniel et al.	
		US- 2003/0208694	11-06-2003	Fang	
		US- 2004/0054926	03-18-2004	Ocepek et al.	
		US- 2004/0098610	05-20-2004	Hrastar	
		US- 2004/0103314	05-27-2004	Liston	
		US- 2004/0162994	08-19-2004	Cohen et al.	
		US- 2004/0181690	09-16-2004	Rothermel et al.	
		US- 2004/0243835	12-02-2004	Terzis et al.	
		US- 2005/0027837	02-03-2005	Roese et al.	
		US- 2005/0050365	03-03-2005	Seki et al.	
		US- 2005/0278775	12-15-2005	Ross	
		US- 2006/0095968	05-04-2006	Portolani et al.	
		US- 2006/0161970	07-20-2006	Hopen et al.	
		US- 2006/0164199	07-27-2006	Gilde et al.	
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 3

	Complete if Known
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		"Packet Fence Overview," PacketFence™, located at http://www.packetfence.org, date unknown.	
		"Network Access Control from Mirage Networks," Mirage Networks, 2006.	
		Whalen, S., "An Introduction to ARP Spooling," April 2001, Revision 1.82, located at http://www.node99.org/projects/arpspoof/	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

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PTO/SB/08A (09-06)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 3

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,834,414	12-28-2004	Chiu	
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Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 2006/029217 A2	03-16-2006	Swan Labs Corporation		

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Sheet 2 of 3

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U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Sheet 3 of 3

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First Named Inventor	Stacey C. Lum
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Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		"Packet Fence Overview," PacketFence™, located at http://www.packetfence.org, date unknown.	
		"Network Access Control from Mirage Networks," Mirage Networks, 2006.	
		Whalen, S., "An Introduction to ARP Spooling," April 2001, Revision 1.82, located at http://www.node99.org/projects/arpspoof/	

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Stacey C. Lum

APPLICATION NO.: 10/949,179

FILED: September 24, 2004

TITLE: Systems and Methods of Controlling Network Access

EXAMINER: Kim Y. Vu

GROUP ART UNIT: 2135

ATTY.DKT.NO.: PA2836US

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List of Co-Pending Patent Applications That May Be Directed Towards Similar Subject Matter

Examiner's Initials	Serial Number	First-Named Inventor	Title	Filing Date
	11/227,679	Stacey C. Lum	Dynamic Address Assignment For Access Control on DHCP Networks	September 14, 2005
	11/433,225	Stacey C. Lum	Network Access Control Management	May 11, 2006
Examiner's Signature:				Date

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Stacey C. Lum

APPLICATION NO.: 10/949,179

FILED: September 24, 2004

TITLE: Systems and Methods of Controlling Network Access

EXAMINER: Kim Y. Vu

GROUP ART UNIT: 2135

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	11/433,225	Stacey C. Lum	Network Access Control Management	May 11, 2006
Examiner's Signature:				Date

Electronic Acknowledgement Receipt

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Application Number:	10949179
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First Named Inventor/Applicant Name:	Stacey C. Lum
Customer Number:	22830
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Time Stamp:	22:44:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		NPL1.pdf	2535157 a5730adf69bf33f9f44673e2b78b5152e7824dcb	yes	14

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	NPL Documents	1	6
	NPL Documents	7	14

Warnings:					
Information:					
2	NPL Documents	NPL2.pdf	1961557 1c7e4e6f01ee993fd6acffa7ef0ed4d8d111bf81	no	43
Warnings:					
Information:					
3	Foreign Reference	WO.pdf	685467 f219fb74b62b11f0e5c42d1e2e34211325783b69	no	22
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Filed	PA2836US_IDS.pdf	586397 c4f97416e948ad3de054cdb801e7f1324e3b12fd	no	12
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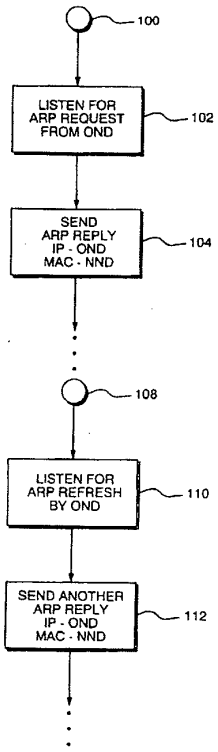
[Continued on next page]

(54) Title: METHOD FOR AUTOMATIC TRAFFIC INTERCEPTION



(57) Abstract: A technique for connecting New Network Devices (NNDs) to an existing communication network. The NND caches the MAC address of an Original (or "Old") Network Device, then gratuitously transmits Address Resolution Protocol (ARP) responses on behalf of the OND, but pointing to its own MAC address. This, in effect, allows the NND to insert itself in the path of packets originally destined for the OND. After performing its designated operations such as filtering, compression, caching, file serving, virus scanning, etc., any remaining packets can still be forwarded to the OND for further processing. In this event, the packets are forwarded by the NND to the OND as MAC layer frames using the OND's MAC address only and not its IP address. In the event that the NND fails, no special steps need to be taken, as the OND will eventually receive traffic again as it responds to further ARP requests.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

METHOD FOR AUTOMATIC TRAFFIC INTERCEPTION

BACKGROUND OF THE INVENTION

Introduction

The present invention is directed to communication networking, and in particular to techniques for installing new network devices without the need to reprogram routing information or modify existing network devices.

It is safe to say that an efficiently running communication network is now an absolute necessity for almost any business enterprise. The proliferation of inexpensive Personal Computers (PCs) and ubiquitous networking infrastructure has done much to improve personal productivity over the past several decades. Many Information Technology (IT) professionals spend their time installing network infrastructure, as well as connecting new devices and reconfiguring existing devices in the network.

Network Addressing Schemes

For example, proper installation of a New Network Device (NND) requires configuring different network addresses before the device can begin to communicate -- in particular, addresses need to be assigned to the new device in such a manner as to avoid conflicts with existing devices. It can therefore become difficult for administrative users to configure devices so that no two share the same address.

The most common networking protocols are Transmission Control Protocol/Internet Protocol (TCP/IP), which are transport/network layer protocols, and Media-Access Control (MAC) protocol, used at the so-called link layer. The typical

device connected to a network thus needs two unique address. One is the address of its network interface or MAC address. The MAC address, in theory, is a globally-unique and unchangeable address which is stored in the equipment hardware. MAC addresses are necessary so that the Ethernet protocol can send data independent of whatever higher layer application protocols are used on top of it. The Ethernet is principally responsible for building "frames" of data consisting of 1500 by blocks. Each frame has an Ethernet header containing the MAC address of the source computer and the MAC address of the destination computer.

A second address required for each computer is typically an IP address. IP is a network layer protocol that allows application layer software to communicate without regard to the exact network technology used. Each computer on a network must, therefore, also have a unique IP address so that application layer software can communicate. IP addresses are virtual and are typically assigned via software.

IP and Ethernet addressing schemes must work together to deliver data from a source to a destination. IP communicates by constructing "packets" which are similar to frames, but which have a different structure. Packets cannot be delivered without network layer processing. In the most common case, they are delivered by the Ethernet layer, which splits the packets into frames adding an Ethernet header, for and sending them along a physical path (which may be wired or wireless) to a switch. The switch then decides which port to send the frame to, by comparing the destination MAC address of the frame to an internal table which maps port numbers to MAC addresses.

Address Resolution Protocol (ARP)

However, at the time of constructing a frame, an Ethernet layer processor has no idea what the MAC address of the destination machine is, which it needs to create an Ethernet header. The only information it has available is the destination IP address, taken from the packet header that the IP application software provided. Therefore, some way must be provided for the Ethernet packet processor to find the MAC address of a destination machine, given the destination's IP address.

This is where the Address Resolution Protocol (ARP) finds use. ARP is a network protocol which maps a network layer address to a data link layer address. For example, ARP can be used to resolve an IP address to a corresponding MAC layer Ethernet address.

ARP operates by sending out a special type of packet called a "ARP request". An ARP requests asks the question, "Is your IP address x.x.x.x"? "If so, send your MAC address back to me." These packets are broadcast to all computers on a (LAN), even on a switched network.

Each computer receiving an ARP request examines it to see if it is currently assigned to a specific IP. If so, it sends a specialized reply packet called an "ARP reply" containing the corresponding MAC address. To minimize the number of ARP packets being broadcast, operating systems typically keep a cache of ARP reply messages. When a computer receives an ARP reply, it will update its ARP cache with a new IP/MAC pair association. As ARP is a stateless protocol, most operating systems will update their ARP cache wherever a reply is received, regardless of whether they have sent out an ARP request.

When an ARP needs to resolve a given IP address to an Ethernet address, it thus broadcasts an ARP request packet. The ARP request contains a source MAC address, a source IP address, and a destination IP address. Each host in the local network then receives the ARP request packet. The host with the specified destination IP address sends an ARP reply packet to the originating host with its MAC address.

In the event a host is not able to obtain a MAC address for a particular IP address, it will then resort to using other protocols such as a Domain Name Service (DNS) protocol, to obtain the IP address of another host, which may be remotely located. For remote accesses, a local network router typically maintains a cache of a such IP/MAC mappings for remotely located machines.

ARP Spoofing

ARP spoofing is a technique that is used to exploit the interaction of IP and Ethernet protocols in order to attack a network. By sending a forged ARP reply packet,

a target computer can be convinced to send frames destined for a first computer to instead go to a second computer controlled by a malicious attacker. This can be done in such a way that the first computer has no idea that redirection to the second malicious computer is taking place. The process of updating a target computer's ARP cache with a forged entry is referred to as ARP cache "poisoning". A so-called man-in-the-middle attack (MiM) can be performed with a malicious user inserting his computer between the communication path of two target computers. The malicious computer forwards frames between the two target computers so that communications are not interrupted, and so that neither of the targets are aware of the attack. The attack is performed with the attacker poisoning the ARP cache of both the source and destination computer, associating the destination computers and source computers IP with its own MAC layer address. All of the target computer's IP traffic will then be routed to the attacker's computer instead of directly to one another. More information on ARP spoofing can be obtained in the paper by Whalen, S., "*An Introduction to ARP Spoofing*", April, 2001.

SUMMARY OF THE INVENTION

There are presently two options when installing a New Network Device (NND) that is intended to intercept traffic addressed to a destination that is an existing Original (or "Old") Network Device (OND), without changing routing information on the network.

The first option is to physically attach the NND in line with the OND. This approach works well, but, for certain network configurations, it is not possible. In other words, when the OND has several interfaces, this would require several NNDs to be installed, and it becomes problematic. This approach is also a possible problem in that the NND is installed "in-line" with the OND. If the NND fails, then traffic may also no longer be forwarded to the OND.

A second approach is to modify network routing information to send traffic directly to the NND instead of the OND. This, however, is labor intensive for the administrator. It also introduces risks of a different type. For example, even if the network administrator properly configures the NND with a unique address, when the NND fails, traffic will still be routed to it, until the routing information is again re-programmed. Because this approach can also interrupt network operation, it too is often considered to be less than desirable.

The present invention is directed to solving the problem of installing a New Network Device (NND), typically one that has a function of packet inspection, filtering, caching, proxying, load balancing, virus scanning, or the like such that it needs to intercept the traffic destined for an Original Network Device (OND). Such a function may be commonly implemented in a router, default gateway, or with a file server. The present invention allows installation of the NND without manually changing routing information for the OND.

In accordance with one aspect of the present invention, the New Network Device (NND) caches the MAC address of the Original Network Device (OND) to be intercepted. It then gratuitously transmits ARP responses on behalf of the OND,

pointing to its own MAC address instead. In effect, the NND thus inserts itself into the network path of the packets originally destined for the OND.

The NND can then operate on the packets originally destined for the OND. Depending upon its assigned function, it can either reply on behalf of the OND, or if its assigned operations are filtering, compression, caching, etc., it may forward any processed IP packets to the OND for further processing. At this point, the NND will forward packets to the NND as MAC layer frames, using MAC layer addressing only, and not using the IP address of the OND. This is typically possible since the OND will usually be connected to the same LAN segment as the OND. The OND can then process the MAC layer frames as it would normally.

If the NND fails, with this approach, the network operation might be interrupted, but only temporarily. Operation will resume normally when the OND broadcasts its own ARP reply packet with its real IP address and real MAC addresses. This then allows the OND to resume operation as it had prior to installation of the NND.

It should be understood that the above process is different from a network attacker's approach of cache poisoning, in that with the invention, both the OND and the NND are under control of the same system administrator. In other words, here, the NND is authorized to perform the transmission of gratuitous ARP responses on behalf of the OND, unlike the scenario of a malicious attack from an outsider.

In accordance with other aspects of the preferred embodiment, an NND also looks for ARP refresh requests by the OND. When the NND sees such a refresh request, it immediately sends another ARP request with its own MAC address. This prevents packets from being routed to the OND even after the OND send its own ARP reply or when the OND otherwise attempts to reconfigure the network.

When the NND fails to operate, it will stop sending ARP request messages. This allows the OND to again send a reply to any ARP request messages that it sees, causing the network routers to reconfigure themselves automatically, to then stop sending messages to the NND.

The present invention has several advantages. An important advantage is the fact that the network administrator avoids having to otherwise manually configure the

ARP table of the NND during its installation. The NND can thus configure itself automatically.

The invention also allows for installation of the NND with minimal interruption or upsetting of the operation of existing devices on the network. The NND is simply enabled, and it begins to participate in network operations as soon as it has a chance to reply to an ARP request packet.

In addition, when the NND is disabled or failed, the OND will simply take its place as soon as the OND has a chance to send an ARP reply itself.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of preferred embodiments of the invention, as illustrated in the accompanying drawings in which like reference characters refer to the same parts throughout the different views. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the invention.

FIG.1 is a high level diagram of a network environment in which the invention may be used.

FIG.2 is a block diagram of operations performed by a New Network Device, namely its participation in the ARP protocol, on behalf of an Original Network Device.

FIG. 3 is a flow chart of operations performed by the New Network Device upon reception of an IP packet destined for an Original Network Device.

DETAILED DESCRIPTION OF THE INVENTION

A description of preferred embodiments of the invention follows.

Turning attention now to FIG. 1, there is shown a block diagram of a typical network environment. A first Local Area Network (LAN 1) consists of a number of computing devices connected by a physical network medium, such as Ethernet. The devices connected to LAN 1 include personal computers (PCs) 10-1, 10-2, 10-3 and other devices such as Original Network Device (OND) 12. The physical layer of LAN 1 may be implemented using any of the known Ethernet protocols, such as IEEE 802.3 wired Ethernet, 802.11 wireless Ethernet, token ring or other similar protocols. As will be described below, a New Network Device (NND) 14 is to be connected to LAN 1.

LAN 1 is also connected to other networks, such as a wide area network 20, through a switch SW 16-1 and/or router 18-1. Still other networks may include a second Local Area Network (LAN 2) that is also connected to the WAN 20 such as through its own router 18-10 and switch 16-10. LAN 2 includes other PC's 10-10 and 10-11. It should be understood that myriad other arrangements are possible for LAN 1 and LAN 2. In addition, while there are shown a switch 16 and router 18 associated with each LAN, there are also myriad known arrangements for internetworking devices to provide connections between networks.

In the envisioned scenario, the New Network Device (NND) 14 is to be substituted for all, or at least part of, the functionality of the Original Network Device (OND) 12. The NND 14 thus must be arranged to intercept traffic destined for OND 12, without manually changing the address information in switch 16-1 or router 18-1 for LAN 1. In particular, OND 12 may be functioning as a router, a default gateway, some sort of file server, packet filter, or other function.

It may be desirable, for example, to have the NND 14 assist the OND 12 with sharing some of the processing load on OND 12. For example, large numbers of remotely located PC's 10 connected through other LANs may be making demands on OND 12 as a file server, such as to access Web pages hosted by the OND 12.

In other instances, the NND 12 may be an improved communication device for efficiently routing messages between LAN 1 and LAN 2.

In still other configurations, the NND 14 can be inserted logically in the network before the OND 12. This could be done, if the NND 14 is to serve as a virus checker and the OND 12 as a mail server, the NND 14 as a content filter and the OND as a web proxy, or the NND as firewall with multiple ONDs being a server farm, as just a few of the possible examples.

What is important to understand is that the administrator 15 for LAN 1 is, with his knowledge, expressly requesting that NND 14 be substituted at least in part for the functionality of OND 12. This is unlike the case of ARP cache poisoning where a malicious user is attempting to control access to the LAN 1.

FIG. 2 is a flowchart of some of the operations performed by the invention. It should be understood that the NND 14 may or may not be connected in line with the OND 12 and indeed, it is actually preferable for the NND to be physically attached as a peer device. This avoids a configuration where the OND 12 has several interfaces requiring installation of multiple NNDs, or where failure of the NND 14 would implicate failure of the OND 12.

In accordance with aspects of the invention, the NND 14 will be substituted for functionality of the OND 12 without the need to reprogram routing information. This avoids, therefore, interruption of network traffic and also reduces an element of risk which could otherwise interrupt network operation in the event that the NND 14 fails.

More particularly, from an initial state 100, a state 102 is entered in which the NND 14 listens for an "ARP request" packet originating from OND 12. Once the ARP request is seen, state 104 is entered in which an "ARP reply" packet is generated by NND 14. In particular, the ARP reply will have an IP address equal to the IP address of the OND 12, but indicate a MAC layer address assigned to the NND 14. The NND 14 does this gratuitously, without further programming of the OND 12 or intervention from other machines 10 connected to the LAN 1.

By transmitting ARP responses on behalf of the OND 12, the NND 14 in effect asserts itself in the network path of the packets originally destined to go the OND 12.

In particular, any packets originating, for example, from LAN 2 at device 10-10 destined for OND 12 will travel through wide area network 20 and arrive at LAN 1and then forwarded by the router 18 and/or switch 16 to the NND 14, instead of the OND 12.

Thus, upon arrival of such packets at inter-networking equipment such as switch 16 or router 18 that have been reprogrammed by the ARP responses originating from the NND 14, such packets will be forwarded to NND 14 instead of OND 12 even if the packets originated at LAN 2 with a destination address of IP address of OND 12. As shown in FIG. 1, a packet 200 arriving at router 18-1 will be routed to the MAC layer address for the NND 14 as modified packet 202.

In order to ensure that such programming remains intact, the NND 14 preferably engages in additional actions as follows. From the state 108, the NND 14 also listens for "ARP refresh" packets originating from the OND 12. Upon seeing them, a state 112 is entered in which another "ARP reply" packet is sent by the NND 14. This additional ARP reply will also indicate an IP address of OND upon a MAC address of the NND 14.

FIG. 3 illustrates a sequence of operations performed by the NND 14 upon receipt of packets. In particular, from an initial state 150, a state 152 is entered in which a packet is received which has a destination IP of the OND and a MAC layer address of the NND. Such packet may be, for example, packet 202 illustrated in FIG. 1.

With the packet 202 having arrived at the NND 14 before the OND 12, the NND 14 may then operate on packet 202. Such operations will depend upon the function of the NND 14. For example, if NND 14 is a web page server intended to off load OND 12, the packet may be handled by NND and/or may be forwarded for further processing by OND 12. Such operations may include forwarding the packet to a higher level protocol such as the HTTP protocol in which a web page server is participating. It is understood that if the NND 14 is performing other functions, such as a packet filter, firewall, virus checker, etc., then it performs functions appropriate to its assigned task(s).

Once finished with its assigned tasks on the packet 202, depending upon its assigned function(s), the NND may need to forward the packet 202 to the OND in step 156 for further processing. In such an instance, the destination MAC address will be reset to OND 14 so that the packet will properly reach its destination at OND 12. The packet can be forwarded using the MAC layer address only at this point, since OND 12 is known to be on the same LAN 1 as NND 14.

While this invention has been particularly shown and described with references to preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the scope of the invention encompassed by the appended claims.

CLAIMS

What is claimed is:

1. A method for operating a communication network having at least an Original Network Device (OND) and a New Network Device (NND), the OND and NND under administration by the same authorized network administrator, the method comprising the steps of, at the NND:

detecting an address resolution message on the network destined for the OND; and

transmitting an address resolution response message on behalf of the OND, the address resolution response message including a first network layer protocol address associated with the OND, and a second network layer protocol address associated with the NND.

2. A method as in claim 1 wherein the first layer protocol is a link layer protocol.

3. A method as in claim 2 wherein the link layer protocol is Media Access Control (MAC).

4. A method as in claim 1 wherein the second layer protocol is a network layer protocol.

5. A method as in claim 4 wherein the network layer protocol is Internet Protocol (IP).

6. A method as in claim 1 wherein the address resolution message is an Address Resolution Protocol (ARP) request packet.

7. A method as in claim 1 wherein the address resolution response message ins an Address Resolution Protocol (ARP) reply packet sent in response to an ARP request packet.

8. A method as in claim 1 additionally comprising, at the NND:

detecting address resolution refresh request messages originating at the OND; and

in response thereto, sending an address resolution response message with a first layer address of the OND and a second layer address of the NND.

9. A method as in claim 1 additionally comprising, at the NND:

processing at least one packet originally addressed to the OND.

10. A method as in claim 9 wherein the processing performed by the NND is at least one of a packet filter, packet compressor, file server, router, and gateway.

11. A method as in claim 9 additionally comprising:

replying to packets originally addressed to the OND on behalf of the OND.

12. A method as in claim 9 additionally comprising:

forwarding one or more unprocessed packets to the OND for further processing.

13. A method as in claim 12 wherein the step of forwarding packets to the OND by the NND forwards packets using only the first protocol layer address of the OND and not the second protocol layer address of the OND.

14. A method as in claim 1 wherein, after the NND enters a mode where it is not operating, at the OND,

detecting an address resolution message destined for the OND; and

transmitting an address resolution response message on its own behalf, the address resolution response message including a first network layer protocol address associated with the OND, and a second network layer protocol address associated with the OND.

15. A New Network Device (NND) apparatus for operating in a communication network with an Original Network Device (OND), the NND and OND both being under administration by the same authorized network administrator, the NND comprising:

a network message receiver, for receiving an address resolution message on the network destined for the OND; and

a network message transmitter, for transmitting an address resolution response message on behalf of the OND, the address resolution response message including a first network layer protocol address associated with the OND, and a second network layer protocol address associated with the NND.

16. An apparatus as in claim 15 wherein the first layer protocol is a link layer protocol.

17. An apparatus as in claim 16 wherein the link layer protocol is Media Access Control (MAC).

18. An apparatus as in claim 15 wherein the second layer protocol is a network layer protocol.

19. An apparatus as in claim 18 wherein the network layer protocol is Internet Protocol (IP).

20. An apparatus as in claim 15 wherein the address resolution message is an Address Resolution Protocol (ARP) request packet.

21. An apparatus as in claim 15 wherein the address resolution response message is an Address Resolution Protocol (ARP) reply packet sent in response to an ARP request packet.

22. An apparatus as in claim 15 wherein the NND additionally comprises:

a receiver for receiving address resolution refresh request messages; and

in response thereto, sending an address resolution response message with a first layer address of the OND and a second layer address of the NND.

23. An apparatus as in claim 15 wherein the NND additionally comprises:

a packet processor for processing at least one packet originally addressed to the OND.

24. An apparatus as in claim 23 wherein the packet processor is at least one of a packet filter, packet compressor, file server, router, virus checker, and gateway.

25. An apparatus as in claim 23 wherein the packet processor additionally replies to packets originally addressed to the OND on behalf of the OND.

26. An apparatus as in claim 23 wherein the packet processor additionally forwards one or more unprocessed packets to the OND for further processing.

27. An apparatus as in claim 26 wherein the NND forwards packets to the OND using only the first protocol layer address of the OND and not the second protocol layer address of the OND.

28. An apparatus as in claim 29 additionally comprising an OND, where the OND itself further comprises:

a receiver, for receiving an address resolution message destined for the OND when the NND is not functioning; and

a transmitter, for transmitting an address resolution response message on behalf of the OND, the address resolution response message including a first network layer protocol address associated with the OND, and a second network layer protocol address associated with the OND.

1/3

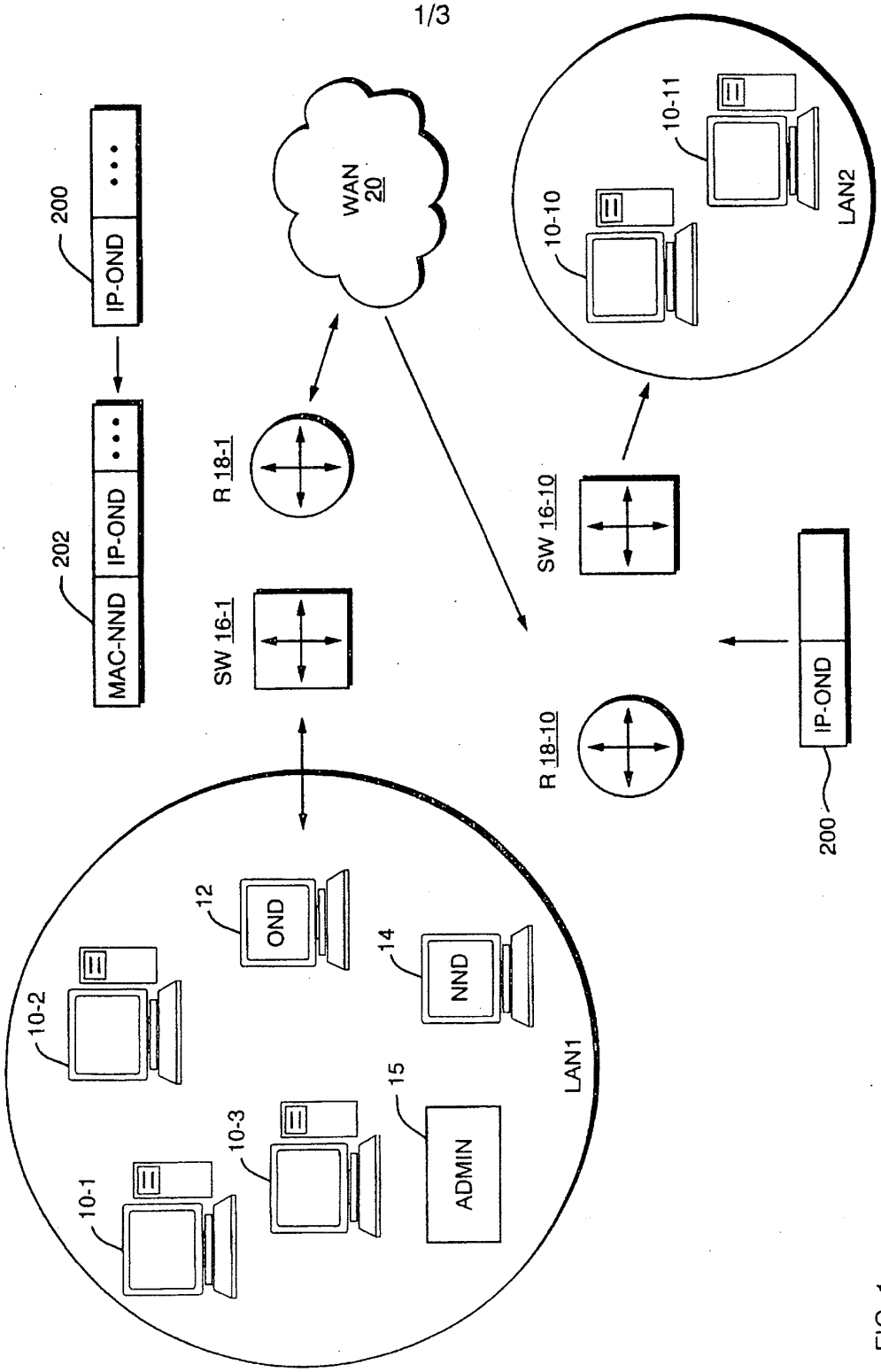
200
IP-OND
202
MAC-NND
IP-OND
WAN
20
R 18-1
SW 16-1
10-1
10-2
10-3
12
OND
14
NND
15
ADMIN
LAN1
10-10
10-11
LAN2
SW 16-10
R 18-10
IP-OND
200

FIG. 1

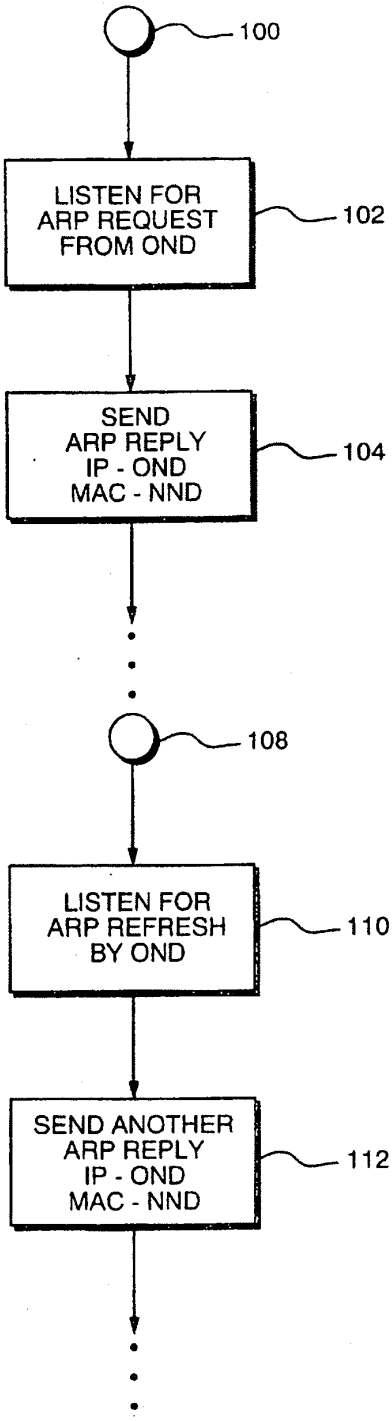
100
LISTEN FOR ARP REQUEST FROM OND
102
SEND ARP REPLY IP - OND MAC - NND
104
108
LISTEN FOR ARP REFRESH BY OND
110
SEND ANOTHER ARP REPLY IP - OND MAC - NND
112

FIG. 2

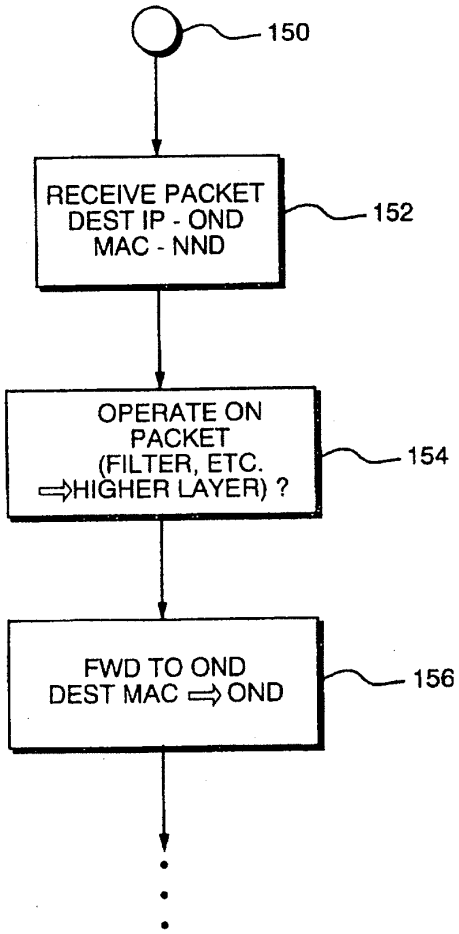
150
RECEIVE PACKET
DEST IP - OND
MAC - NND
152
OPERATE ON
PACKET
(FILTER, ETC.
⇨HIGHER LAYER) ?
154
FWD TO OND
DEST MAC ⇨ OND
156

FIG. 3

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

22830 7590 02/29/2008
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

EXAMINER
SONG, HOSUK

ART UNIT	PAPER NUMBER
2135	

MAIL DATE	DELIVERY MODE
02/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No.	Applicant(s)	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17-30 and 53-56* is/are allowed.

6)☒ Claim(s) *1-16,31,33-35,37,38,41-43,46-50,52,57 and 59* is/are rejected.

7)☒ Claim(s) *32,36,39,40,44,45,51,58 and 60* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/4/05; 7/10/07*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 31,33-35,37-38,41-43,46-50,52,57 are rejected under 35 U.S.C. 102(e) as being anticipated by Mann et al(US 2006/0147043).

Claims 31,59: Mann disclose receiving a request for access to a less-restricted subset of the protected network from an access device(page1 ,0012), the request being received through a communication port configured for communicating port configured for communicating between the access device(page 4,0051-0052) and a restricted subset of the protected network(fig.1)., the restricted subset including a gatekeeper(fig.2,#114) . Mann disclose applying a security policy to the access device(fig.6,#612), responsive to the request and reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied in (fig.8 and page 2,0032). Mann disclose reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied in (fig.9).

Claim 33: Mann disclose configuring the communication port such that requests for access to the less-restricted subset are communicated to the gatekeeper in (fig.1).

Claim 34: Mann discloses authenticating a user of the access device in (fig.6).

Claim 35: Mann discloses obtaining system data from the access device and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy in (fig.2, page 5,0054).

Claim 37: Mann discloses communicating between the gatekeeper and an agent executing on the access device to obtain system data from the access device and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy in (page 8, 0075).

Claim 38: Mann disclose system data includes information regarding devices connected to the access device in (page 8,0076).

Claim 41: Mann disclose obtaining identification information regarding the access device from the access point in (page 7,0072).

Claim 42: Mann discloses selecting the security policy from among a plurality of security policies in (fig.6).

Claim 43: Mann disclose security policy is responsive to an identity of the access device or an identity of a user of the access device in (page 7,0071).

Claim 46: Mann discloses access point is a network switch in (fig.1).

Claim 47: Mann disclose wherein the access point is a wireless access point in (page 1,0012).

Claim 48: Mann disclose access point is a remote access virtual private network in (fig.6).

Claim 49: Mann disclose gatekeeper is accessible to elements of the less restricted subset of the protected network in (fig.1).

Claim 50: Mann disclose restricted subset of the protected network is characterized by an access control list in (fig.2).

Claim 52: Mann disclose gatekeeper and the access point are embodied in separate devices in (fig.2).

Claim 57: Mann disclose dividing the computing network into a restricted subset and a less restricted subset and receiving a request at the restricted subset, the request being to access the less-restricted subset in (page 4, 0050-0051). Mann disclose enforcing a security policy in response and allowing communication to the less-restricted subset , responsive to the enforcement of the security policy, the communication to the less restricted subset not necessarily passing through the restricted subset in (fig.8 and page 2,0032 and fig.6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mann et al(US 2006/0147043) in view of Schnurer et al(US 5,842,002).

Claim 36: Mann does not specifically disclose system data includes antivirus software version data. Schnurer disclose this limitation in (col.6,lines 63-67;col.7,lines 1-18). It would have been obvious to person of ordinary skill in the art at the time invention was made to employ antivirus software version data as taught in Schnurer with system of Mann in order to prevent newly created virus from entering the network thus providing a virus free network environment.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16,57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1,57: recites the limitation "to allow" and “for allowing”, it is unclear what applicant's intended metes and bounds of the claim are, since the claim appears to cover anything and everything that does not prohibit actions from occurring. Claims 2-16, dependent on claim 1, follow therewith.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 57 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. For such claims to be statutory they must be embodied within a tangible computer medium such as hard drives or some other computer hardware form.

Allowable Subject Matter

Claims 17-30,53-56 allowed.

Claim 17: Prior art of record does not teach an access control configured to reconfigure the communication device such that data sent from the access device is received by the less-restricted subset of the protected network rather than merely a restricted subset of the protected network, if the audit results in a determination that the access device meets the requirements of the at least one security policy, the restricted subset of the protected network including the gatekeeper.

Claim 53: Prior art of record does not teach configuring the communication port to communicate data to the less-restricted subset of the protected network rather than merely the restricted subset of the protected network, responsive to the received command and receiving a second communication from the access device at the communication port, the communication port now being configured to pass the second communication to the less-restricted subset of the protected network.

Claims 18-30,54-56 are allowed because of dependency.

Claims 32,36,39-40,44-45,51,58,60 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Information Disclosure Statement

The reference "Packet Fence Overview," has not been considered at this time because applicant failed to provide dates.

USPTO Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOSUK SONG whose telephone number is 5712723857. The examiner can normally be reached on mon-fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KIM VU can be reached on 5712723859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HOSUK SONG/
Primary Examiner, Art Unit 2135

Notice of References Cited	Application/Control No. 10/949,179	Applicant(s)/Patent Under Reexamination LUM, STACEY C.	
	Examiner HOSUK SONG	Art Unit 2135	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2006/0147043	07-2006	Mann et al.	380/270
*	B	US-5,842,002	11-1998	Schnurer et al.	703/21
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/949,179	LUM, STACEY C.
Examiner	**Art Unit**
HOSUK SONG	2135

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	2/25/08								
	1	v								
	2	v								
	3	v								
	4	v								
	5	v								
	6	v								
	7	v								
	8	v								
	9	v								
	10	v								
	11	v								
	12	v								
	13	v								
	14	v								
	15	v								
	16	v								
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	23	=								
	24	=								
	25	=								
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

SEARCHED			
Class	Subclass	Date	Examiner
726	1-4 12	2/25/2008	HS
	15		
	23-24		
713	150,153		
	168		
709	225		
	228-229		

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
EAST, foreign patent database search IBM TDB	2/25/2008	HS

U.S. Patent and Trademark Office

Part of Paper No. 20080220

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S775	2	access adj3 device and (subset near4 network) and gatekeeper and security adj3 policy	US-PGPUB; USPAT	OR	ON	2008/02/20 10:18
S776	7	access adj3 device and (VLAN) and gatekeeper and security adj3 policy	US-PGPUB; USPAT	OR	ON	2008/02/20 10:21
S777	153	access adj3 device and (network) and gatekeeper and security adj3 policy	US-PGPUB; USPAT	OR	ON	2008/02/20 10:22
S778	153	access adj3 device and gatekeeper and security adj3 policy	US-PGPUB; USPAT	OR	ON	2008/02/20 10:25
S779	10636	sub near3 network	US-PGPUB; USPAT	OR	ON	2008/02/20 10:26
S780	1	S779 and S777	US-PGPUB; USPAT	OR	ON	2008/02/20 10:26
S781	5923	sub-network	US-PGPUB; USPAT	OR	ON	2008/02/20 10:27
S782	1	S781 and S777	US-PGPUB; USPAT	OR	ON	2008/02/20 10:28
S783	21570	subset same network	US-PGPUB; USPAT	OR	ON	2008/02/20 10:30
S784	9	S783 and S777	US-PGPUB; USPAT	OR	ON	2008/02/20 10:30
S785	18	access adj3 device and (network) and gatekeeper and security adj3 policy and access adj3 point	US-PGPUB; USPAT	OR	ON	2008/02/20 10:51
S786	811	726/1.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:24
S787	886	726/2.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:24
S788	863	726/3.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:24
S789	1630	726/4.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:24

S790	404	726/12.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:25
S791	352	726/15.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:25
S792	735	726/23.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:25
S793	636	726/24.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:25
S794	747	713/150.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:25
S795	871	713/153.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:25
S796	2177	713/168.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:26
S797	3235	709/225.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:26
S798	2243	709/228.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:26
S799	3818	709/229.ccls.	US-PGPUB; USPAT	OR	ON	2008/02/25 09:26
S800	1636	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port)	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:42
S801	26	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and (gatekeeper)	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:42
S802	432	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and (subset)	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:44
S803	2	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S786	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:44

S804	1	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S787	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:44
S805	8	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S788	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:44
S806	13	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S789	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:44
S807	0	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S790	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:44
S808	5	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S791	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:44
S809	16	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S792	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:45
S810	2	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S793	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:45
S811	5	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S794	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:45

S813	3	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S795	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:45
S814	5	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S796	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:45
S815	22	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S797	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:45
S816	13	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S798	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:45
S817	21	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and S799	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:45
S818	581	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and (policy)	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:46
S819	162	(VLAN or virtual adj3 local adj3 area adj3 network) and (config$8 or reconfig$8) near4 (port) and (policy) and (second or plural$4 or multiple or many) near3 (VPN or VLAN)	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2008/02/25 10:47

2/26/2008 5:28:10 AM
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United States Patent and Trademark Office
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www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 4744

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/949,179	09/24/2004 **RULE**	370	2135	PA2836US

APPLICANTS
Stacey C. Lum, Los Altos, CA;

**** CONTINUING DATA ***************************
This appln claims benefit of 60/505,582 09/24/2003
and claims benefit of 60/513,080 10/21/2003

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
11/09/2004

Foreign Priority claimed	❑ Yes ☑ No	❑ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	❑ Yes ☑ No		CA	5	60	6
Verified and Acknowledged	/Hosuk Song/ Examiner's Signature	Initials				

ADDRESS
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303
UNITED STATES

TITLE
Systems and methods of controlling network access

FILING FEE RECEIVED		
874	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

BIB (Rev. 05/07).

PTO/SB/08A (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 3

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,834,414	12-28-2004	Chiu	
		US- 2,519,435	08-22-1950	Byrd, Jr.	
		US- 3,100,664	08-13-1963	Duval	
		US- 1,830,383	11-03-1931	Bos	
		US- 1,860,326	05-24-1932	Jackson	
		US- 2,131,067	09-27-1938	Paden	
		US- 2,247,592	07-01-1941	Swift	
		US- 2,731,056	01-17-1956	Anson	
		US- 3,701,557	10-31-1972	Centofante	
		US- 5,010,622	04-30-1991	Morita	
		US- 4,181,339	01-01-1980	Rigsby	
		US- 4,951,984	08-28-1990	Huang	
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		US- 5,944,368	08-31-1999	Hastings	
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		US- 6,044,402	03-28-2000	Jacobson et al.	
		US- 6,304,973	10-16-2001	Williams	
		US- 6,393,484	05-21-2002	Massarani	
		US- 6,363,489	05-26-2002	Comay et al.	

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Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 2006/029217 A2	03-16-2006	Swan Labs Corporation		

Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Sheet 2 of 3

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Application Number	10/949,179
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Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

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		US- 6,745,333	06-01-2004	Thomsen	
		US- 2002/0010869	01-24-2002	Kim	
		US- 2003/0023880	01-30-2003	Edwards et al.	
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		US- 2003/0126464	07-03-2003	McDaniel et al.	
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		US- 2004/0054926	03-18-2004	Ocepek et al.	
		US- 2004/0098610	05-20-2004	Hrastar	
		US- 2004/0103314	05-27-2004	Liston	
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		US- 2006/0095968	05-04-2006	Portolani et al.	
		US- 2006/0161970	07-20-2006	Hopen et al.	
		US- 2006/0164199	07-27-2006	Gilde et al.	
		US-			

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Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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Sheet 3 of 3

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First Named Inventor	Stacey C. Lum
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Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		~~"Packet Fence Overview," PacketFence™, located at http://www.packetfence.org, date unknown.~~	
		"Network Access Control from Mirage Networks," Mirage Networks, 2006.	
		Whalen, S., "An Introduction to ARP Spooling," April 2001, Revision 1.82, located at http://www.node99.org/projects/arpspoof/	

Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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Sheet 1 of 3

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First Named Inventor	Stacey C. Lum
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		US- 1,860,326	05-24-1932	Jackson	
		US- 2,131,067	09-27-1938	Paden	
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		US- 2,731,056	01-17-1956	Anson	
		US- 3,701,557	10-31-1972	Centofante	
		US- 5,010,622	04-30-1991	Morita	
		US- 4,181,339	01-01-1980	Rigsby	
		US- 4,951,984	08-28-1990	Huang	
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		US- 5,944,368	08-31-1999	Hastings	
		US- 5,606,668	02-25-1997	Shwed	
		US- 6,044,402	03-28-2000	Jacobson et al.	
		US- 6,304,973	10-16-2001	Williams	
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		US- 6,363,489	05-26-2002	Comay et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 2006/029217 A2	03-16-2006	Swan Labs Corporation		

Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 3

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,745,333	06-01-2004	Thomsen	
		US- 2002/0010869	01-24-2002	Kim	
		US- 2003/0023880	01-30-2003	Edwards et al.	
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		US- 2003/0126464	07-03-2003	McDaniel et al.	
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		US- 2006/0161970	07-20-2006	Hopen et al.	
		US- 2006/0164199	07-27-2006	Gilde et al.	
		US-			

FOREIGN PATENT DOCUMENTS

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Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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Sheet 3 of 3

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Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		~~"Packet Fence Overview," PacketFence™, located at http://www.packetfence.org, date unknown.~~	
		"Network Access Control from Mirage Networks," Mirage Networks, 2006.	
		Whalen, S., "An Introduction to ARP Spooling," April 2001, Revision 1.82, located at http://www.node99.org/projects/arpspoof/	

Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Stacey C. Lum

APPLICATION NO.: 10/949,179

FILED: September 24, 2004

TITLE: Systems and Methods of Controlling Network Access

EXAMINER: Kim Y. Vu

GROUP ART UNIT: 2135

ATTY.DKT.NO.: PA2836US

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List of Co-Pending Patent Applications That May Be Directed Towards Similar Subject Matter

Examiner's Initials	Serial Number	First-Named Inventor	Title	Filing Date
	11/227,679	Stacey C. Lum	Dynamic Address Assignment For Access Control on DHCP Networks	September 14, 2005
	11/433,225	Stacey C. Lum	Network Access Control Management	May 11, 2006
Examiner's Signature:	/Hosuk Song/			Date 02/25/2008

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Stacey C. Lum

APPLICATION NO.: 10/949,179

FILED: September 24, 2004

TITLE: Systems and Methods of Controlling Network Access

EXAMINER: Kim Y. Vu

GROUP ART UNIT: 2135

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	11/433,225	Stacey C. Lum	Network Access Control Management	May 11, 2006
Examiner's Signature:	/Hosuk Song/			Date 02/25/2008

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS:	Stacey C. Lum
APPLICATION NO.:	10/949,179
TITLE:	Systems and Methods of Controlling Network Access
FILING DATE:	September 24, 2004
EXAMINER:	Hosuk Song
ART UNIT:	2135
ATTY. DKT. NO.:	PA2836US

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RESPONSE A

Examiner Song:

In response to the office action mailed February 29, 2008 (*Office Action*), the Applicant submits herewith the following amendments and remarks:

Amendments to the Specification begin on page 2.

Amendments to the Claims are reflected in the listing of claims beginning on page 13.

Amendments to the Drawings are discussed on page 34.

Remarks begin on page 35.

Conclusion begins on page 38.

Drawing Replacement and Annotated Sheets are attached following page 38.

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AMENDMENTS TO THE SPECIFICATION

Please replace Paragraph [0007] of the specification with the following:

[0007] Each instance of Access Point 120 may include a large number of individual communication ports. These ports are used to connect through GateKeeper 110 to other elements within Secure Network 100 such as File Server 130 or LAN 125. Large corporate networks may include many ~~instance~~instances of Access Point 120, each including hundreds of individual communication ports and being associated with an instance of GateKeeper 110.

Please replace Paragraph [0008] of the specification with the following:

[0008] Some instances of Access Point 120 are capable of supporting virtual local area networks (VLANs). VLANs are generated by associating communication ports within Access Point 120 with separate virtual networks. For example, one Access Device 160 may be placed on a different VLAN than another Access ~~Devices~~Device 160 by assigning the communication ports of Access Point 120 to separate VLANs. From the point of view of these devices, the effect of a VLAN is equivalent to having a separate hardwired network.

Please replace Paragraph [0010] of the specification with the following:

[0010] A disadvantage of the use of GateKeeper 110, as practiced in the prior art, is that all communications between Access Device 160 and LAN 125 pass through GateKeeper 110. For large networks including many instances of Access Point 120, each of which may include many communication ports, this can be a significant burden. The

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use of one instance of GateKeeper 110 to support numerous instances of Access Device 160 is limited by bandwidth and required sophistication (e.g., cost) of GateKeeper 110. It is undesirable for GateKeeper 110 to become a limiting factor on the bandwidth of communication between instances of Access Device 160 and Secure Network 100. Further, the use of a separate GateKeeper 110 for each instance of Access Device 160 or Access Point 120 is often ~~prohibitory~~prohibitively expensive. Even if a separate GateKeeper is used for each Access Point 120, there is no isolation between compliant and non-compliant Access Devices 160 which are attached to the same Access Point 120.

Please replace Paragraph [0013] of the specification with the following:

[0013] Typically, the less-restricted subset of the protected network and the restricted subset of the protected network are characterized by Virtual Local Area Networks (e.g., VLANs) defined within the access point and optionally by access control lists (ACL) of a router, firewall, or switch situated between the VLAN and the protected network. Different VLANs within the same access point, or within different access points, may be configured to characterize a plurality of restricted subsets and/or a plurality of less-restricted subsets within the protected network. A communication port of the access point is configured such that network traffic directed at the protected network is initially passed through a restricted VLAN rather than through a less-restricted VLAN. The restricted VLAN allows network traffic to pass to the restricted subset of the protected network and is typically restricted in the sense that it only allows access to elements of the protected network that are configured to communicate with an access device whose security characteristics are unknown or questionable. In contrast, the less-restricted VLAN allows access to the less-restricted subset of the protected network and, in typical

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embodiments, to elements of both the less-restricted subset and the restricted subset. For example, the restricted VLAN allows traffic to pass to a gatekeeper configured to receive requests for access to the less-restricted VLAN, and to determine if, and to what extent, access may be allowed. To grant access, the gatekeeper sends commands to the access point in order to reconfigure a communication port to which the access device is connected. The reconfiguration typically includes reassigning the communication port from the restricted VLAN to the less-restricted VLAN.

Please replace Paragraph [0015] of the specification with the following:

[0015] Various embodiments of the invention include a computing network comprising a less-restricted subset of the computing network, access to the less-restricted subset being responsive to a first VLAN, a restricted subset of the computing network including a gatekeeper, the gatekeeper configured to receive requests for access to the less-restricted subset from an access device and to issue commands configured to allow access to the less-restricted subset, access to the restricted subset of the computing network being responsive to a second VLAN, and at least one access point including a communication port configurable for communication with <u>the</u> less-restricted subset or alternatively for communication with only the restricted subset, configuration of the communication port including association of the communication port alternatively with the first VLAN or the second VLAN, configuration of the communication port being responsive to the commands issued by the gatekeeper. Other elements are optional.

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Please replace Paragraph [0018] of the specification with the following:

[0018] Various embodiments of the invention include a method of granting access to a protected network, the method comprising receiving a first communication from an access device at a communication port, the communication port being configured to pass the first communication to a restricted subset of the protected network, the restricted subset including a gatekeeper configured to enforce security policy for access to a less-restricted subset of the protected network, receiving a command from the gatekeeper, the command being responsive to the received first communication and being configured to reconfigure the communication port to communicate data to the less-restricted subset of the protected network, configuring the communication port to communicate data to the less-restricted subset of the protected network rather than merely the restricted subset of the protected network, responsive to the received command, and receiving a second communication from the access device at the communication port, the communication port now being configured to pass the second communication to the less-restricted subset of the protected network. Other steps are optional.

Please replace Paragraph [0025] of the specification with the following:

[0025] FIG. 4 is a flowchart ~~illustration~~illustrating a method of granting access to a protected network, according to various embodiments of the invention.

Please replace Paragraph [0038] of the specification with the following:

[0038] Communication received at one member of Ports 305A-305G is directed internally to another member of Ports 305A-305G via a member of VLANs 310A-310D.

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VLANs 310A-310D are logical associations between members of Ports 305A-305G. Typically, any members of Ports 305A-305G that are configured to be associated with the same member of VLANs 310A-310D are in bi-directional communication with each other. These associations are illustrated in FIGs. 3A and 3B by Lines 315. For example, with Ports 305A-305G configured ~~set~~ as shown in FIG. 3A, communication from Access Device 230 and received at Port 305A is directed to Port 305F because Port 305A and Port 305F are both associated with VLAN 310C. (In some embodiments of Access Point 215, a member of VLANs 310A-310D may be configured such that some members of Ports 305A-305G, even if associated with the same VLAN, are hidden from each other. For example, in these embodiments, both Ports 305A and 305B may be in communication with Port 305F but not with each other.)

Please replace Paragraph [0039] of the specification with the following:

[0039] The associations between ~~member~~members of Ports 305A-305G and VLANs 310A-310D are controlled by Switch Logic 317 which is accessible to other devices, for example through Port 305G. Switch Logic 317 is configured for configuring and reconfiguring members of Ports 305A-305G responsive to received commands. For example, by receiving an appropriate command, Switch Logic 317 is configured to reconfigure Port 305A to be associated with VLAN 310A, as illustrated in FIG. 3B below. In this ~~configuration~~configuration, data received at Port 305A is directed to Port 305D via VLAN 310A, rather than to Port 305F.

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Please replace Paragraph [0042] of the specification with the following:

[0042] Data passed through members of Ports ~~305DA~~305D-305G are received by Router 220 and may be communicated to other elements of Protected Network 200 responsive to access control lists (ACL 340A-340D) associated with Ports 335A-335D of Router 220. ACL 340A through 340D are each communication filters that deny or allow communication to be passed to specific elements or sets of elements within Protected Network 200. For example, ACL 340C may be an access control list that specifically allows communication to network addresses used by GateKeeper 225 and DHCP 260, and blocks communication to all other network addresses. In this case, communication through Port 335C of Router 220 would only be allowed to reach these ~~to~~ elements of Restricted Subset 205 and would not be allowed to reach elements of Less-Restricted Subset 210.

Please replace Paragraph [0043] of the specification with the following:

[0043] ACL 340A-340D of Router 220 may be used to limit communication from Access Device 230 to specific elements of Protected Network 200. For example, in the embodiments illustrated by FIG. 3A, if ACL 340C is configured to restrict communication to Restricted Subset 205, and Ports 305A-305C are associated with VLAN 310C as indicated by Lines 315, then communication via these ~~member~~members of Ports 305A-305G will be restricted to Restricted Subset 205. In typical embodiments, at least one member of ACL 340A-340D is configured to allow communication to Restricted Subset 205 but not to Less-Restricted Subset 210. As is discussed further herein, by reconfiguring a member of Ports 305A-305C to be associated with a different

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member of VLANs 310A-310D, not subject to the filtering of ACL 340C, communications from Access Device 230 can be directed to elements within Less-Restricted Subset 210, and optionally Restricted Subset 205, rather than merely to Restricted Subset 205.

Please replace Paragraph [0047] of the specification with the following:

[0047] FIG. 3B is a block diagram showing further details of Access Point 215, Router 220 and GateKeeper 225 of FIG. 2, after access has been granted to elements of Less-Restricted Subset 210, according to various embodiments of the invention. Port 305A has been reconfigured to be associated with VLAN 310A rather than VLAN 310C. ~~Because,~~ Because VLAN 310A is communicatively coupled to Port 305D and Port 335A (of Router 220) via ACL 340A, any communication received at Port 305A from Access Device 230 is now subject to the filtering ~~affects~~effects of ACL ~~304A~~340A rather than ACL 340C. If ACL 340A allows communication to network addresses associated with one or more elements of Less-Restricted Subset 210, the above reconfiguration of Port 305A results in a granting of access to Less-Restricted Subset 210 from Access Device 230. In some embodiments, if ACL 340A is configured to allow access to members of Less-Restricted Subset 210 it is also configured to allow access to members of Restricted Subset 205. Once Port 305A has been reconfigured to be associated with VLAN 310A, future general network traffic between Access Device 230 and ~~Less-restricted Network 205~~Less-Restricted Subset 210 may pass through Ports 305A, 305D and 335A without passing through GateKeeper 225 or other elements of Restricted Subset 205. Further, communication related to access to security of Protected Network 200 may still be

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received by GateKeeper 225 via Port 305A. For example, GateKeeper 225 may still receive control traffic such as DNS lookups or DHCP requests, or requests to access additional elements of Protected Network 200, or requests to continue to access the Less-Restricted Subset 210.

Please replace Paragraph [0048] of the specification with the following:

[0048] In some ~~embodiments~~ embodiments, members of VLAN 310A-310D and ACL 340A-340D are optionally used to grant or bar access to different subsets of Protected Network 200, Less-Restricted ~~Network~~Subset 210, or Restricted ~~Network~~Subset 205. For example, ACL 340B may be configured to grant access to File Server 235, Policy Manager 250 and GateKeeper 225. In this ~~case~~ case, associating a member of Ports 305A-305C with VLAN 310B may provide access to these devices from an instance of Access Device 230. Granting of access to a specific region of Less-Restricted ~~Network 205~~Subset 210 is optionally responsive to which member of Security Policies 330A-330B has been satisfied.

Please replace Paragraph [0049] of the specification with the following:

[0049] FIG. 4 is a flowchart illustrating a method of granting access to Less-Restricted Subset 210 (FIG. 2), according to various embodiments of the invention. In these embodiments, an Update Port Log Step 410 and a Restrict Port Step ~~420,~~ 420 are used to prepare an open (unused) communication port on Access Point 215 for receiving a request for access to Less-Restricted Subset 210. This request is received from Access Device 230 in a Receive Access Request Step 430. In response, GateKeeper 225

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authenticates a user, obtains audit data, and applies a security policy in an Authenticate User Step 440, an Obtain Audit Data Step 450 and an Apply Security Policy Step 460, ~~respectfully~~respectively. If the security policy is satisfied, then in a Reconfigure Port Step ~~470~~ 470, GateKeeper 225 reconfigures the communication port of Access Point ~~215,~~ 215 to which Access Device 230 has connected. Finally, the reconfigured communication port is used to pass communication between Access Device 230 and one or more element of Less-Restricted ~~Network 205~~Subset 210 in a Communicate Step 480. Further details of these steps are discussed herein.

Please replace Paragraph [0052] of the specification with the following:

[0052] In Receive Access Request Step 430, a request for access to Less-Restricted Subset 210 is received at one of Ports 305A-305C configured to pass data to DHCP 260 and Gatekeeper 225. Typically, this request is received from an external device such as Access Device 230. Because Port 305A, Port 305B and Port 305C are configured to pass data to DHCP ~~230~~260 and Gatekeeper 225, the received access request passes through Access Point 215 and is received by either DHCP ~~230~~260 or Gatekeeper 225 In typical embodiments, an initial access request is first acknowledged by DHCP ~~230~~260 which assigns a dynamic network address (e.g., IP address) to Access Device 230 and returns, to Access Device 230, a network address associated with GateKeeper 225 or more specifically Policy Auditor 325. Using this network address, Access Device 230 may engage in further communication with GateKeeper 225 or Policy Auditor 325. In some embodiments, DHCP 260 and instances of GateKeeper 225 are associated with a local domain name service configured to provide network addresses associated with a

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particular instance of GateKeeper 225 configured to manage (reconfigure) the particular Access Point 215 to which Access Device 230 is connected.

Please replace Paragraph [0057] of the specification with the following:

[0057] As is discussed further herein, in some embodiments, satisfaction ~~off~~ of all the requirements of a particular security policy results in access to Less-Restricted Subset 210, while satisfaction of a subset of the requirements associated with the particular security policy is considered partial satisfaction of the security policy and may result in a more limited access to Less-Restricted Subset 210.

Please replace Paragraph [0062] of the specification with the following:

[0062] Access Control 320 may selectively grant access to different parts of Protected Network 200 if ACL 340B is configured to allow access to different elements within Protected Network ~~200,~~ 200 than ACL 340A is configured. For example, in one embodiment, Access Device 230 will ~~received~~receive access to all of Less-Restricted Subset 210 if Port 305A is associated with VLAN 310A, or alternatively Access Device 230 will receive access to only a part of Less-Restricted Subset 210 if Port 305A is associated with VLAN 310B. When Port 305A is associated with VLAN 310A, as in FIG. 3B, communication from Access Device 230 is directed through Port 335A of Router 220 subject to ACL 340A and, thus, may access only those elements of Protected Network 200 allowed by ACL 340A. When Port 305A is associated with VLAN 310B, communication from Access Device 230 is instead passed through Port 335B subject to ACL 340B and may access only those elements of Protected Network 200 permitted by

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ACL 340B. A selection between granting access to a first or second part of Protected Network 200 can, therefore, be made using Access Control 320. The selection is optionally responsive to the security policy used in Apply Security Policy Step 460, to whether the security policy was fully or partially satisfied, to data obtained in Authenticate User Step 440 or Obtain Audit Data Step 450, or the like.

Please replace Paragraph [0067] of the specification with the following:

[0067] In some embodiments, GateKeeper 225 uses DHCP 260 to assign IP addresses from a restricted IP address range depending on the compliance of Access Device 230 to security policies 330A-330B. GateKeeper 225 inserts DHCP options and/or modifies the IP source addresses of DHCPDISCOVER and DHCPREQUEST packets, based on the compliance of the Access Device 230 to security policies 330A-330B. DHCP 260 is configured to provide an address from the restricted address range or the less-restricted address range based on the source address and/or options present in the DHCP request or discover packets that have been modified by GateKeeper 225. In some embodiments, the insertion of DHCP options and/or modification of IP source addresses may be used to characterize restricted and less-restricted subnets, rather then configuring port associations with VLANs as discussed herein.

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IN THE CLAIMS

1. (Cancelled)

2. (Cancelled)

3. (Currently Amended) The ~~computing~~ network gatekeeper of claim [[1]]17, ~~further including~~ wherein the network gatekeeper is communicatively coupled with a router configured to limit access to only the restricted subset using an access control list.

4. (Cancelled)

5. (Cancelled)

6. (Currently Amended) The ~~computing~~ network gatekeeper of claim [[1]]17, wherein the network gatekeeper is further configured to update the access device using an update module.

7. (Currently Amended) The ~~computing~~ network gatekeeper of claim [[1]]17, wherein the network gatekeeper is further configured to obtain system data from the access device.

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8. (Currently Amended) The ~~computing~~ network gatekeeper of claim 7, wherein the network gatekeeper is further configured to use the system data to determine if the access device meets requirements of a security policy, and to issue ~~the~~ commands responsive to this determination, the commands being configured to grant access to the less-restricted subset.

9. (Currently Amended) The ~~computing~~ network gatekeeper of claim [[1]]17, wherein the network gatekeeper is further configured to read an administrator specified configuration of ~~the~~a communication port from the ~~at least one access point~~communication device, to store the read administrator specified configuration in a port configuration table, and to issue commands configured to prevent access to the less-restricted subset of the ~~computing~~protected network via the communication port.

10. (Currently Amended) The ~~computing~~ network gatekeeper of claim 9, wherein the network gatekeeper is further configured to use the stored administrator specified configuration when issuing commands configured to ~~allow~~grant access to the less-restricted subset.

11. (Currently Amended) The ~~computing network~~method of claim [[1]]53, ~~wherein the gatekeeper is~~ further ~~configured to~~including ~~select~~selecting the security policy from a plurality of security policies.

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12. (Currently Amended) The ~~computing~~ network gatekeeper of claim [[1]]17, wherein the network gatekeeper is further configured to select from a hierarchical set of security policies, the hierarchical set configured to provide access to different parts of the less-restricted subset of the ~~computing~~protected network.

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) The ~~computing network~~method of claim [[1]]45, wherein the security policy includes an audit of the access device.

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17. (Currently Amended) A network gatekeeper comprising:

at least one security policy including requirements that must be satisfied before an access device is granted access to a less-restricted subset of a protected network;

a policy auditor configured to audit ~~then~~the access device using the at least one security policy, in response to a request to access the less-restricted subset of the protected network, the request being sent from the access device to the gatekeeper via a communication device; and

an access control configured to reconfigure the communication device such that data sent from the access device is received by the less-restricted subset of the protected network rather than merely a restricted subset of the protected network, if the audit results in a determination that the access device meets the requirements of the at least one security policy, the restricted subset of the protected network including the gatekeeper.

18. (Original) The network gatekeeper of claim 17, wherein the restricted subset of the protected network includes elements configured to communicate with the access device having a questionable security status, and the less-restricted subset of the protected network includes those elements of the protected network not included in the restricted subset.

19. (Original) The network gatekeeper of claim 17, wherein the at least one security policy is responsive to an identity of the access device.

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20. (Original) The network gatekeeper of claim 17, wherein the at least one security policy is selected by the policy auditor responsive to a part of the less-restricted subset of the protected network to which access is requested.

21. (Original) The network gatekeeper of claim 17, wherein the audit is responsive to antivirus software executing on the access device.

22. (Original) The network gatekeeper of claim 17, wherein the audit is responsive to an operating system, a version of the operating system, or patches applied to the operating system, executing on the access device.

23. (Original) The network gatekeeper of claim 17, wherein the policy auditor is configured to request data from an agent on the access device.

24. (Original) The network gatekeeper of claim 17, wherein the communication device includes a wireless access point.

25. (Original) The network gatekeeper of claim 17, wherein the communication device includes a wireless access point configured to support an 802.1x standard.

26. (Original) The network gatekeeper of claim 17, wherein the communication device includes a network switch.

27. (Original) The network gatekeeper of claim 17, wherein the communication device includes a router.

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28. (Original) The network gatekeeper of claim 17, wherein the reconfiguration of the communication device includes reconfiguring a port on the communication device such that data received at the port is passed on to elements of both the less-restricted subset of the protected network and the restricted subset of the protected network.

29. (Original) The network gatekeeper of claim 28, wherein reconfiguring the port includes returning the port to an administrator specified setting.

30. (Original) The network gatekeeper of claim 28, wherein reconfiguring the port includes sending one or more commands from the gatekeeper to the communication device.

31. (Cancelled)

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32. (Currently Amended) A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request;

reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied;

~~The method of claim 31, further including~~ reading an administrator specified configuration of the communication port from the access point[[,]]; and

storing the read administrator specified configuration.

33. (Currently Amended) The method of claim [[31]]39, further including configuring the communication port such that requests for access to the less-restricted subset are communicated to the gatekeeper.

34. (Currently Amended) The method of claim [[31]]39, further including authenticating a user of the access device.

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35. (Currently Amended) The method of claim [[31]]34, further including obtaining system data from the access device, and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy.

36. (Original) The method of claim 35, wherein the system data includes antivirus software version data.

37. (Currently Amended) The method of claim [[31]]45, further including communicating between the gatekeeper and an agent executing on the access device to obtain system data from the access device, and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy.

38. (Original) The method of claim 37, wherein the system data includes information regarding devices connected to the access device.

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39. (Currently Amended) A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request;

reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied; and

~~The method of claim 31, further including~~ communicating between the gatekeeper and an agent executing on the access device to monitor security status of the access device after reconfiguring the communication port for communicating between the access device and the less-restricted subset.

40. (Currently Amended) The method of claim [[39]]37, wherein the system data includes information regarding computing code executing on the access device.

41. (Cancelled)

42. (Currently Amended) The method of claim [[31]]45, further including selecting the security policy from among a plurality of security policies.

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43. (Original) The method of claim 42, wherein selecting the security policy is responsive to an identity of the access device or an identity of a user of the access device.

44. (Currently Amended) A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request;

reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied; and

selecting the security policy from among a plurality of security policies, ~~The method of claim 42, wherein~~ the selecting ~~the security policy is~~being responsive to an identity of elements within the less-restricted subset of the protected network to which access is requested.

45. (Currently Amended) A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request;

reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied; and

~~The method of claim 31, further including~~ updating the access device if requirements of the security policy are not satisfied.

46. (Currently Amended) The method of claim [[31]]45, wherein the access point is a network switch.

47. (Currently Amended) The method of claim [[31]]45, wherein the access point is a wireless access point.

48. (Currently Amended) The method of claim [[31]]45, wherein the access point is a remote access virtual private network.

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49. (Currently Amended) The method of claim [[31]]45, wherein the gatekeeper is accessible to elements of the less-restricted subset of the protected network.

50. (Currently Amended) The method of claim [[31]]45, wherein the restricted subset of the protected network is characterized by an access control list.

51. (Currently Amended) ~~The method of claim 50, wherein~~A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper and being characterized by an access control list, the access to the restricted subset of the protected network ~~is~~being responsive to a VLAN configured to communicate with the protected network subject to the access control list;

applying a security policy to the access device, responsive to the request; and

reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied.

52. (Cancelled)

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53. (Currently Amended) A method of granting access to a protected network, the method comprising:

receiving a first communication from an access device at a communication port, the communication port being configured to pass the first communication to a restricted subset of the protected network, the restricted subset including a gatekeeper configured to enforce a security policy for access to a less-restricted subset of the protected network;

receiving a command from the gatekeeper, the command being responsive to the received first communication and being configured to reconfigure the communication port to communicate data to the less-restricted subset of the protected network;

configuring the communication port to communicate data to the less-restricted subset of the protected network rather than merely the restricted subset of the protected network, responsive to the received command; and

receiving a second communication from the access device at the communication port, the communication port now being configured to pass the second communication to the less-restricted subset of the protected network.

54. (Currently Amended) The method of claim 53, wherein configuring the communication port includes ~~association~~associating the communication port with a VLAN.

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55. (Original) The method of claim 53, wherein the communication port is limited to communicating with the restricted subset of the protected network by an access control list, when the first communication is received.

56. (Currently Amended) The method of claim 55, wherein the communication port is limited to communicating with elements of the protected network by another access control list, when the second communication is received.

57. (Cancelled)

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58. (Currently Amended) ~~The computing network of claim 57, wherein~~ A computing network comprising:

elements configured to communicate with one or more access devices using at least a communication port of an access point, the elements including at least a gatekeeper;

means for dividing the elements of the computing network into a restricted subset and a less-restricted subset,

the restricted subset ~~of the computing network includes~~including one or more elements of the computing network configured to communicate with access devices having an unknown security status, and

the less-restricted subset ~~of the computing network includes~~including one or more ~~those~~ elements of the computing network not included in the restricted subset;

means for receiving a request at the restricted subset, the request being to access the less-restricted subset;

means for enforcing a security policy in response to the request; and

means for granting access to the less-restricted subset via the communication port of the access point, responsive to the enforcement of the security policy, the access to the less-restricted subset including communication to the less-restricted subset not necessarily passing through the restricted subset.

59. (Cancelled)

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60. (Currently Amended) A computer readable medium including computer code configured for controlling access to a computer network, the computer code comprising:

a code segment configured for receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

a code segment configured for applying a security policy to the access device, responsive to the request;

a code segment configured for reconfiguring the communication port for communicating between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied;

~~The computer readable medium of claim 59, wherein the computer code further includes~~ a code segment configured for reading an administrator specified configuration of the communication port from the access point[[,]]; and

a code segment configured for storing the read administrator specified configuration.

61. (New) The network gatekeeper of claim 7, wherein the system data includes antivirus software version data.

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62. (New) The network gatekeeper of claim 17, wherein the network gatekeeper is further configured to authenticate a user of the access device.

63. (New) The network gatekeeper of claim 17, wherein the network gatekeeper is configured to update the access device if requirements of the security policy are not satisfied.

64. (New) The network gatekeeper of claim 17, wherein the communication device includes a remote access virtual private network.

65. (New) The network gatekeeper of claim 17, wherein the restricted subset of the protected network is characterized by an access control list.

66. (New) The method of claim 39, wherein the access point is a network switch.

67. (New) The method of claim 39, wherein the access point is a wireless access point.

68. (New) The method of claim 39, wherein the access point is a remote access virtual private network.

69. (New) The method of claim 39, wherein the gatekeeper is accessible to elements of the less-restricted subset of the protected network.

70. (New) The method of claim 39, wherein the restricted subset of the protected network is characterized by an access control list.

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71. (New) The method of claim 39, further including updating the access device if requirements of the security policy are not satisfied.

72. (New) The method of claim 39, wherein the security policy includes an audit of the access device.

73. (New) The method of claim 45, further including authenticating a user of the access device.

74. (New) The method of claim 73, further including obtaining system data from the access device, and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy.

75. (New) The method of claim 74, wherein the system data includes antivirus software version data.

76. (New) The method of claim 53, further including authenticating a user of the access device.

77. (New) The method of claim 76, further including obtaining system data from the access device, and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy.

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78. (New) The method of claim 77, wherein the system data includes antivirus software version data.

79. (New) The method of claim 53, further including communicating between the gatekeeper and an agent executing on the access device to obtain system data from the access device, and wherein applying the security policy includes using the system data to determine if the access device satisfies the requirements of the security policy.

80. (New) The method of claim 79, wherein the system data includes information regarding devices connected to the access device.

81. (New) The method of claim 79, wherein the system data includes information regarding computing code executing on the access device.

82. (New) The method of claim 53, further including communicating between the gatekeeper and an agent executing on the access device to monitor security status of the access device after reconfiguring the communication port for communicating between the access device and the less-restricted subset.

83. (New) The method of claim 53, further including updating the access device if requirements of the security policy are not satisfied.

84. (New) The method of claim 55, wherein the communication port is coupled with a network switch.

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85. (New) The method of claim 55, wherein the communication port is coupled with a wireless access point.

86. (New) The method of claim 55, wherein the communication port is coupled with a remote access virtual private network.

87. (New) The computing network of claim 58, wherein the communication port of the access point is limited to communicating with the restricted subset by an access control list when the request is received.

88. (New) The computing network of claim 87, wherein the communication port of the access point is limited to communicating with the elements of the computing network by another access control list after access is granted to the less-restricted subset.

89. (New) The computing network of claim 58, wherein the communication port of the access point is coupled with a network switch.

90. (New) The computing network of claim 58, wherein the communication port of the access point is coupled with a wireless access point.

91. (New) The computing network of claim 58, wherein the communication port of the access point is coupled with a remote access virtual private network.

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92. (New) The computing network of claim 58, wherein the means for granting access to the less-restricted subset includes means for authenticating a user of the one or more access devices.

93. (New) The computing network of claim 92, wherein the means for granting access to the less-restricted subset includes means for obtaining system data from the one or more access devices, and wherein the means for enforcing the security policy includes means for using the system data to determine if the one or more access devices satisfies requirements of the security policy.

94. (New) The computing network of claim 93, wherein the system data includes antivirus software version data.

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AMENDMENTS TO THE DRAWINGS

Please replace the drawing sheets for FIGs. 2, 3A, and 3B with the replacement sheets attached hereto. FIG.'s 2, 3A, and 3B are updated only to correct typographical errors in reference numerals. In FIG.'s 2, 3A, and 3B, "LAN 225" is corrected to read "LAN 125". In FIG.'s 3A and 3B, "ACL 340A" is corrected to read "ACL 340A" by removing the extraneous underline from "ACL". In FIG. 3B, "DHCP 230" is corrected to read "DHCP 260". These changes do not require related changes in the text of the detailed specification, and are supported by the detailed specification as filed. The amended figures are included in the annotated drawing sheets as well as the replacement drawing sheets appended to this response, in compliance with 37 CFR 1.81(d).

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REMARKS

Claims 1-60 were examined in the *Office Action*. In view of the telephonic interview of April 28, 2008 and the following remarks, Applicant addresses the Examiner's responses and rejections in the *Office Action* and respectfully requests allowance of the Application.

Interview Summary

Applicant thanks Examiner Song for the telephonic interview of April 28, 2008. Applicant's representative, Brent K. Whitlock (reg. no. 61,371) was present.

During the interview, the *Office Action* was discussed. Applicant proposed that the reference "Packet Fence Overview" provided in an Information Disclosure Statement be considered using dates included in the reference downloaded from the provided web site address which indicate when the reference's pages had last been modified. The Examiner agreed to consider to the reference using a date of 2006.

The allowability of claim 58 was also discussed. The Examiner indicated that claim 58 would be allowable if the claim was rewritten in independent form, replacing the word "allowing" with an active word such as "granting", and including a hardware element within the limitations of the claim. Applicant has done so in this Response.

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Amendments

Paragraphs [0007], [0008], [0010], [0013], [0015], [0018], [0025], [0038], [0039], [0042], [0043], [0047], [0048], [0049], [0052], [0057], [0062], and [0067] are requested to be replaced in this Response only to correct typographical and grammatical errors. Thus, no new matter is introduced by the requested amendments.

Applicant notes that in the publication of the present application as U. S. Patent Application Publication No. US2005/0063400 A1, a typographical error is present which is not present in the originally submitted application. In particular, the first occurrence of "may be" in paragraph [0029] and line 3 of page 13 of the originally submitted specification has been published as "maybe" in line 12 of paragraph [0031] of U. S. Patent Application Publication No. US2005/0063400 A1.

Without conceding the Examiner's rejections and for the purpose of expediting prosecution, Applicant has cancelled claims 1, 2, 4, 5, 13-15, 31, 41, 52, 57, and 59. Applicant has also amended claims 3, 6-12, 16, 17, 32-35, 37, 39, 40, 42, 44-51, 53, 54, 56, 58, and 60. Further, Applicant has added new dependent claims 61-94.

As claims 32, 39, 44, 45, 51, 58, and 60 were indicated as being allowable if rewritten in independent form (*Office Action*), Applicant has done so.

Allowed claims 17, 53, 54, 56 have been amended only to correct typographical errors.

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Applicant believes that dependent claims 3, 6-12, 16, 33-38, 40, 42, 43, 46-50, and 61-94 are allowable at least because of their dependency upon an allowable independent claim.

Drawing sheets for FIG.'s 2, 3A, and 3B are requested to be replaced to correct typographical errors in reference numerals. There are no associated changes in the detailed specification related to these drawing amendments. Applicant believes that no new matter is introduced by these drawing amendments.

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CONCLUSION

Applicant makes no admissions or statements regarding past prosecution of the above-referenced claims and reserves the right to pursue any or all of the original claims at a later time, either within the present application or in future application(s). It is believed that no new matter is introduced by the amendments presented in this Response. Entry of the aforementioned amendments is respectfully requested. Applicant believes that the application is in condition for allowance. Applicant respectfully requests that the Examiner issue a notice of allowance.

The Examiner is invited to contact the Applicant's undersigned representative with any questions concerning the present application.

Respectfully submitted,

Stacey C. Lum

Date: May 23, 2008

By: /Brent K. Whitlock, Reg. No. 61,371/

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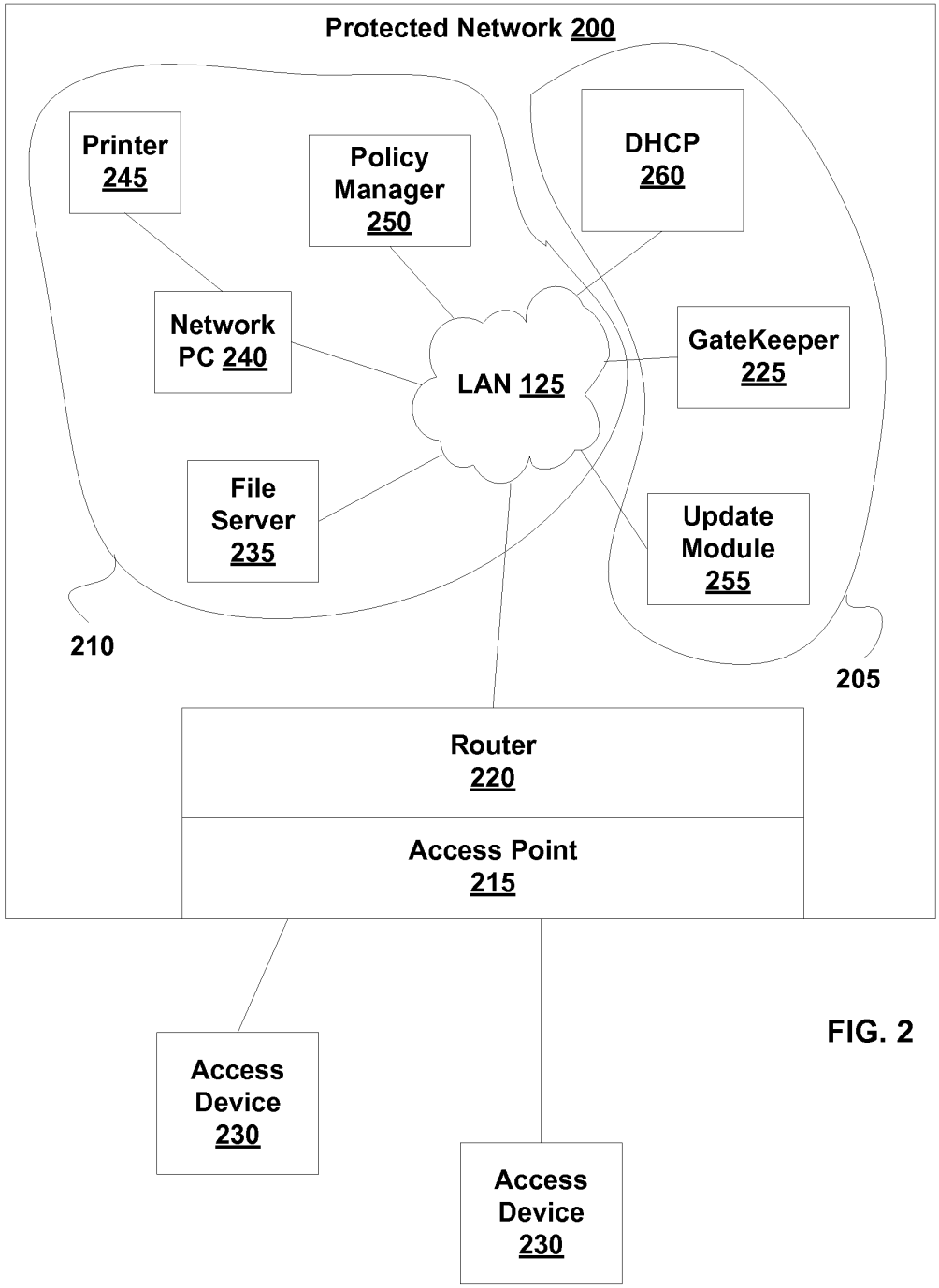
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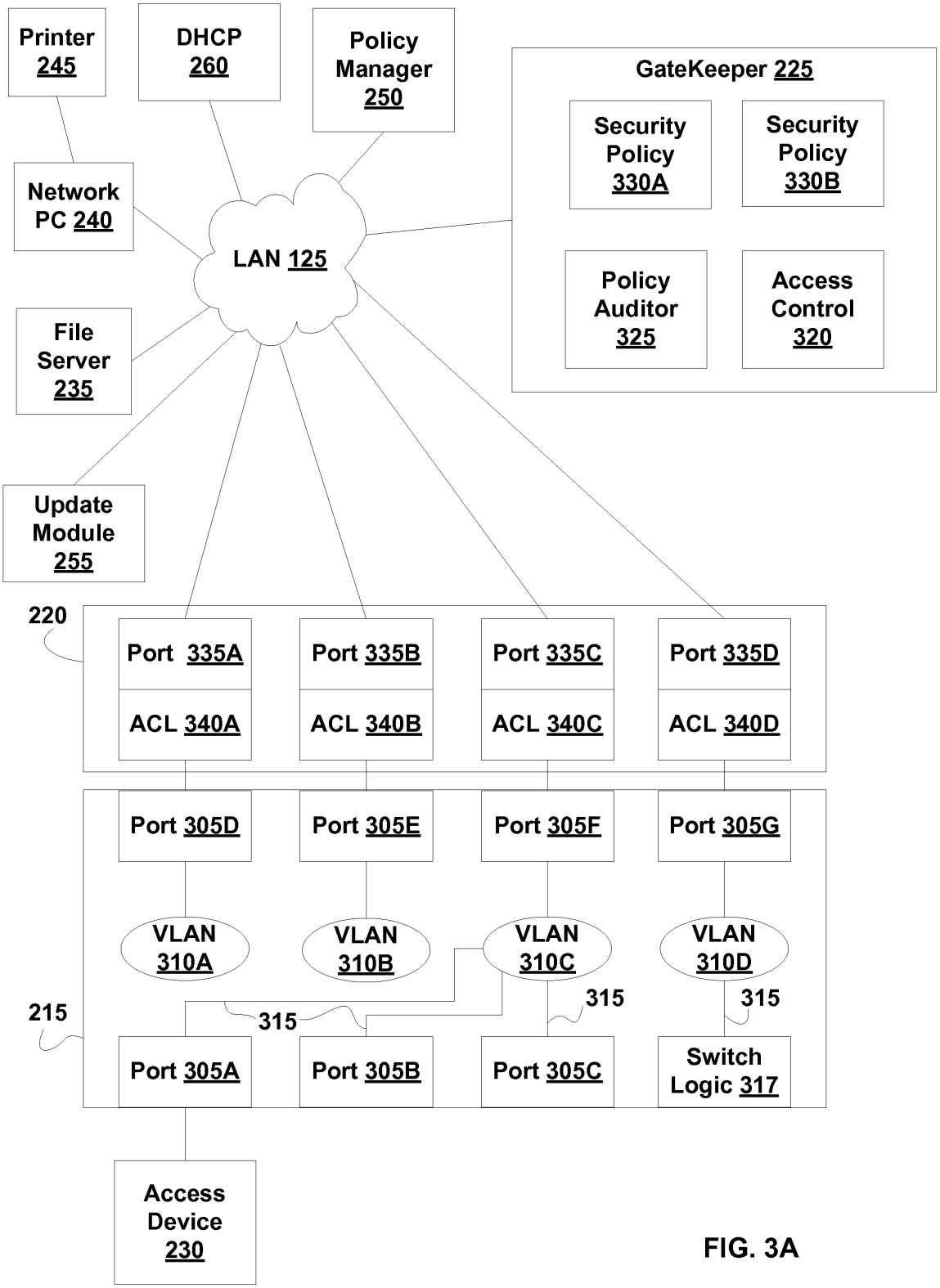
Printer 245
Policy Manager 250
DHCP 260
Network PC 240
LAN 125
GateKeeper 225
File Server 235
Update Module 255
210
205
Router 220
Access Point 215
Access Device 230
Access Device 230

FIG. 2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Policy Manager 250
GateKeeper 225
Security Policy 330A
Security Policy 330B
Network PC 240
LAN 125
Policy Auditor 325
Access Control 320
File Server 235
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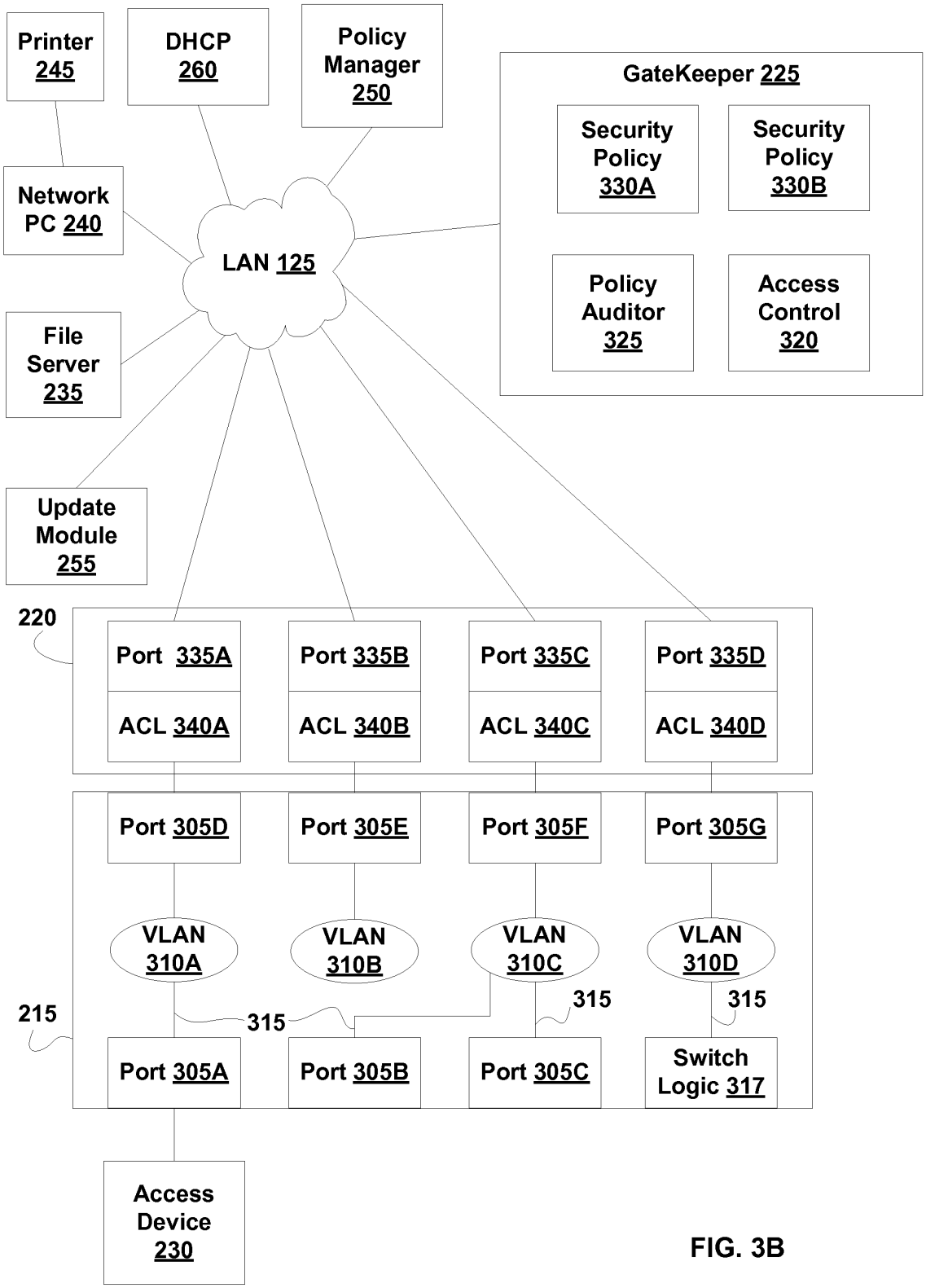
220
Port 335A
Port 335B
Port 335C
Port 335D
ACL 340A
ACL 340B
ACL 340C
ACL 340D
Port 305D
Port 305E
Port 305F
Port 305G
VLAN 310A
VLAN 310B
VLAN 310C
VLAN 310D
315
315
315
215
Port 305A
Port 305B
Port 305C
Switch Logic 317
Access Device 230

FIG. 3A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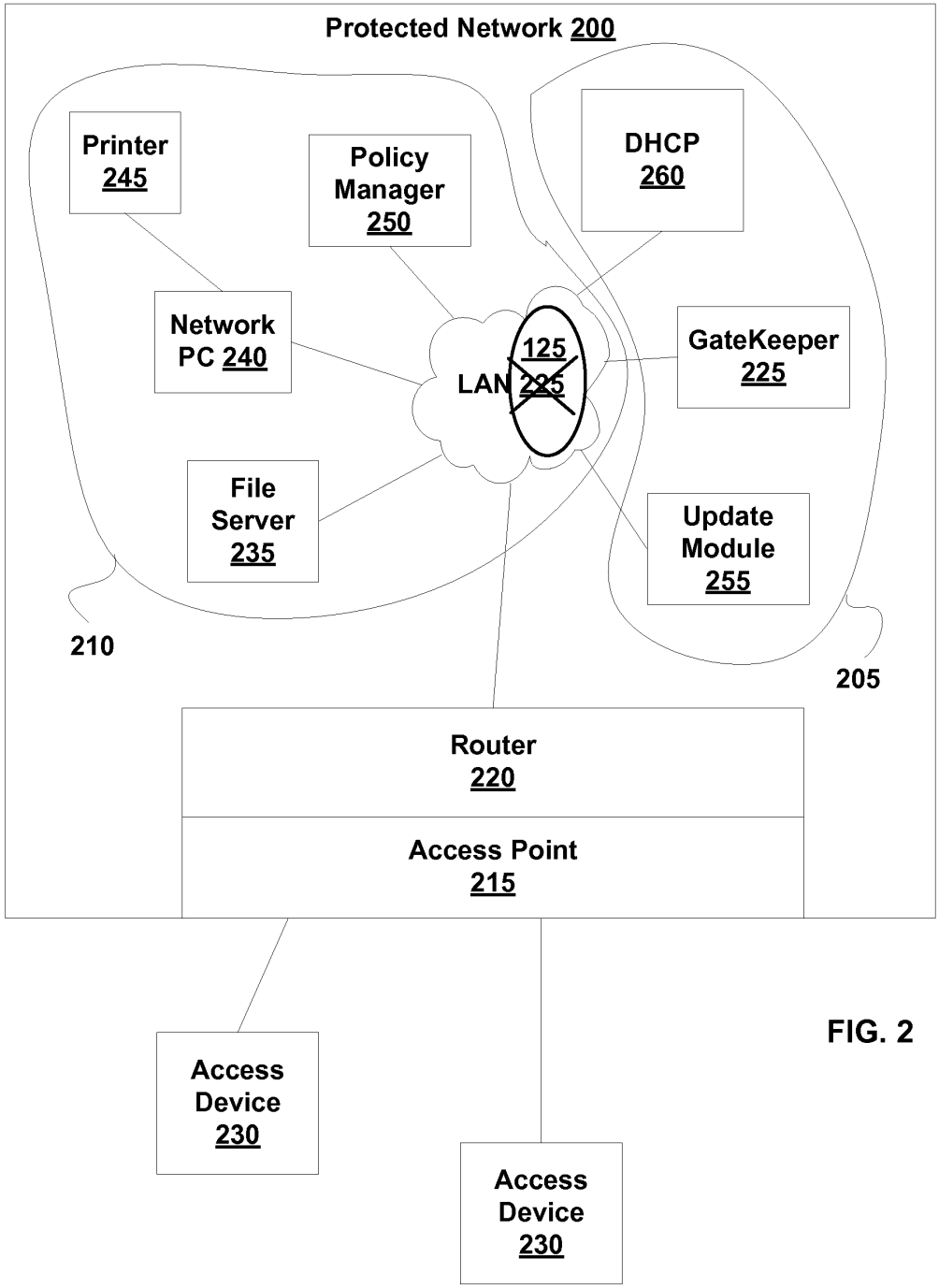
Policy Manager 250
GateKeeper 225
Security Policy 330A
Security Policy 330B
Policy Auditor 325
Access Control 320
Network PC 240
LAN 125
File Server 235
Update Module 255
220
Port 335A
Port 335B
Port 335C
Port 335D
ACL 340A
ACL 340B
ACL 340C
ACL 340D
Port 305D
Port 305E
Port 305F
Port 305G
VLAN 310A
VLAN 310B
VLAN 310C
VLAN 310D
315
315
315
215
Port 305A
Port 305B
Port 305C
Switch Logic 317
Access Device 230

FIG. 3B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Printer 245
Policy Manager 250
DHCP 260
Network PC 240
LAN ~~225~~ 125
GateKeeper 225
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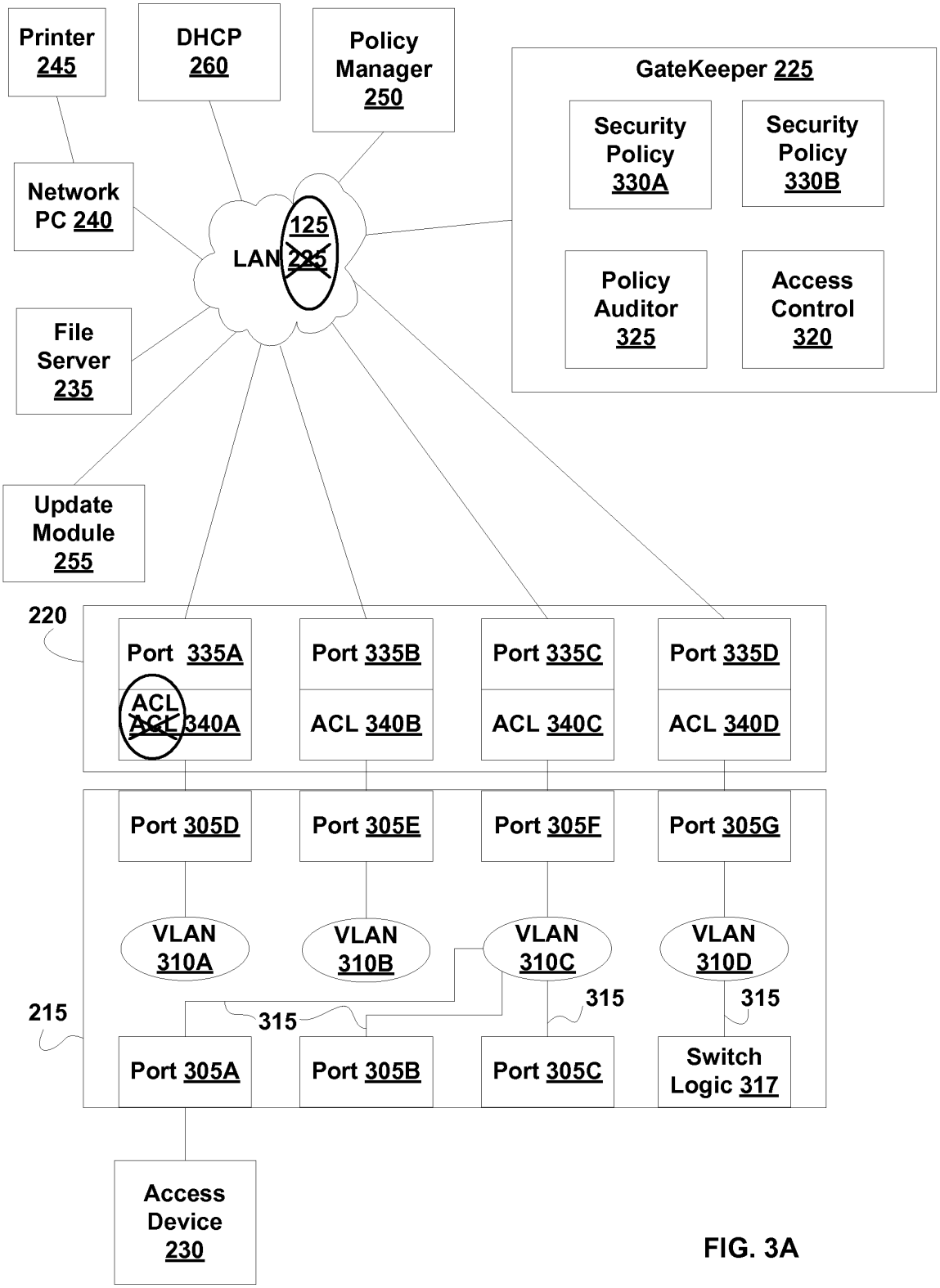
Update Module 255
210
205
Router 220
Access Point 215
Access Device 230
Access Device 230

FIG. 2


Printer 245
DHCP 260
Policy Manager 250
GateKeeper 225
Security Policy 330A
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Policy Auditor 325
Access Control 320
Network PC 240
LAN 125 ~~235~~
File Server 235
Update Module 255
220
Port 335A
Port 335B
Port 335C
Port 335D
ACL ~~ACL~~ 340A
ACL 340B
ACL 340C
ACL 340D
Port 305D
Port 305E
Port 305F
Port 305G
VLAN 310A
VLAN 310B
VLAN 310C
VLAN 310D
315
315
315
215
Port 305A
Port 305B
Port 305C
Switch Logic 317
Access Device 230

FIG. 3A

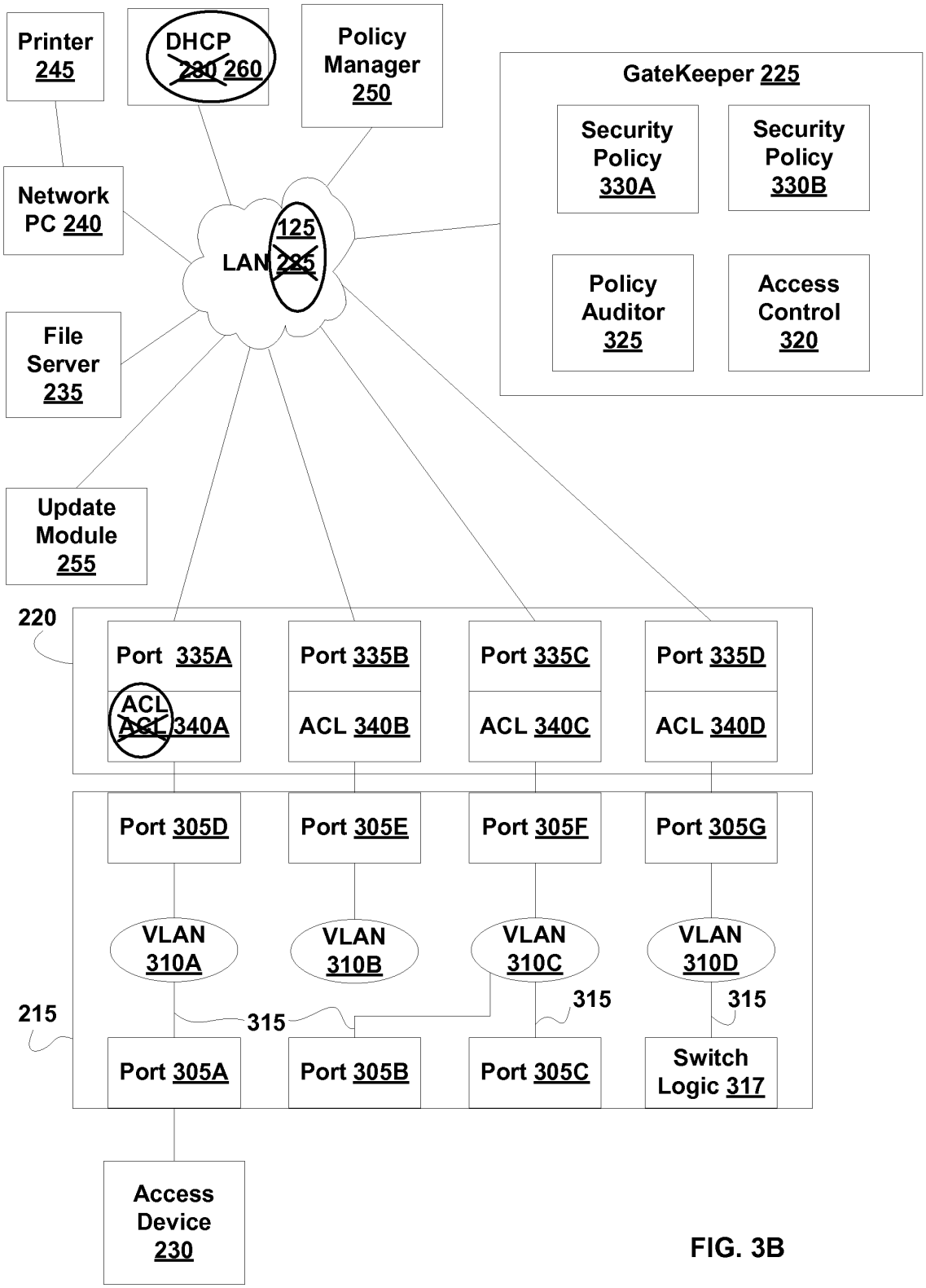
Printer 245
DHCP ~~280~~ 260
Policy Manager 250
GateKeeper 225
Security Policy 330A
Security Policy 330B
Network PC 240
LAN ~~285~~ 125
Policy Auditor 325
Access Control 320
File Server 235
Update Module 255
220
Port 335A
Port 335B
Port 335C
Port 335D
ACL ~~ACL~~ 340A
ACL 340B
ACL 340C
ACL 340D
Port 305D
Port 305E
Port 305F
Port 305G
VLAN 310A
VLAN 310B
VLAN 310C
VLAN 310D
315
315
315
215
Port 305A
Port 305B
Port 305C
Switch Logic 317
Access Device 230

FIG. 3B

Electronic Patent Application Fee Transmittal

Application Number:	10949179
Filing Date:	24-Sep-2004
Title of Invention:	Systems and methods of controlling network access
First Named Inventor/Applicant Name:	Stacey C. Lum
Filer:	Brent K. Whitlock
Attorney Docket Number:	PA2836US

Filed as Small Entity

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	22	25	550
Independent claims in excess of 3	2201	3	105	315
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**865**

Electronic Acknowledgement Receipt

EFS ID:	3350577
Application Number:	10949179
International Application Number:	
Confirmation Number:	4744
Title of Invention:	Systems and methods of controlling network access
First Named Inventor/Applicant Name:	Stacey C. Lum
Customer Number:	22830
Filer:	Brent K. Whitlock
Filer Authorized By:	
Attorney Docket Number:	PA2836US
Receipt Date:	23-MAY-2008
Filing Date:	24-SEP-2004
Time Stamp:	13:37:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$865
RAM confirmation Number	7624
Deposit Account	060600
Authorized User	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment - After Non-Final Rejection	PA2836US_Response_A.pdf	131306 b5e82b71654100108a257acb49515676069329da	no	38
Warnings:					
Information:					
2	Drawings-only black and white line drawings	PA2836US_Amended_Figures_A.pdf	47402 67f156f2b3539459e0cd202512b62f7ad7462c6	no	3
Warnings:					
Information:					
3	Drawings-only black and white line drawings	PA2836US_Annotated_Figures_A.pdf	47206 d67cd298eacb95c0442d55d2952aff7fb35f8385	no	3
Warnings:					
Information:					
4	Fee Worksheet (PTO-06)	fee-info.pdf	8272 053523bc8ca2172d233d04fd581ea9dc46abdcc9	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	234186		

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PTO/SB/08a (03-08)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10949179
	Filing Date	2004-09-24
	First Named Inventor	Lum
	Art Unit	2135
	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6006259		1999-12-21	Adelman et al.	

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U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20070064689		2007-03-22	Shin et al.	
	2	20030191966		2003-10-09	Gleichauf	
	3	20080060067		2008-03-06	Kim et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] ¡	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

EFS Web 2.1.1

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10949179
	Filing Date	2004-09-24
	First Named Inventor	Lum
	Art Unit	2135
	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

If you wish to add additional Foreign Patent Document citation information please click the Add button Add			
NON-PATENT LITERATURE DOCUMENTS Remove			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		☐
If you wish to add additional non-patent literature document citation information please click the Add button Add			
EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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	First Named Inventor	Lum
	Art Unit	2135
	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Brent K. Whitlock, Reg. No. 61,371/	Date (YYYY-MM-DD)	2008-05-23
Name/Print	Brent K. Whitlock	Registration Number	61371

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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PTO/SB/08a (03-08)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10949179
	Filing Date	2004-09-24
	First Named Inventor	Lum
	Art Unit	2135
	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6769000	B1	2004-07-27	Akhtar et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20040193912	A1	2004-09-30	Li et al.	
	2	20050044197	A1	2005-02-24	Lai	
	3	20020120749	A1	2002-08-29	Widegren et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] ¡	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	10949179
	Filing Date	2004-09-24
	First Named Inventor	Lum
	Art Unit	2135
	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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If you wish to add additional non-patent literature document citation information please click the Add button Add			
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Examiner Signature		Date Considered	

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☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Brent K. Whitlock, Reg. No. 61,371/	Date (YYYY-MM-DD)	2008-05-23
Name/Print	Brent K. Whitlock	Registration Number	61371

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Electronic Acknowledgement Receipt

EFS ID:	3351510
Application Number:	10949179
International Application Number:	
Confirmation Number:	4744
Title of Invention:	Systems and methods of controlling network access
First Named Inventor/Applicant Name:	Stacey C. Lum
Customer Number:	22830
Filer:	Brent K. Whitlock
Filer Authorized By:	
Attorney Docket Number:	PA2836US
Receipt Date:	23-MAY-2008
Filing Date:	24-SEP-2004
Time Stamp:	14:54:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed	US_IDS_Form__SB_08a_US.pdf	574124 acc7a4599c18ad20fd0cc05c40aa2cf757a6238d	no	4

Warnings:

Information:

2	Information Disclosure Statement (IDS) Filed	US_IDS_Form__SB_08a_Foreign.pdf	574194 b6dfb1cbe7c7b816f96c6d268e70ae7399af87e7	no	4
Warnings:					
Information:					
			Total Files Size (in bytes):	1148318	

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IN THE

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):	Stacey C. Lum
APPLICATION NO.:	10/949,179
FILED:	September 24, 2004
TITLE:	Systems and Methods of Controlling Network Access
EXAMINER:	Hosuk Song
GROUP ART UNIT:	2135
ATTY.DKT.NO.:	PA2836US

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Brent K. Whitlock, Reg. No. 61,371

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SIR:

Pursuant to the provisions of 37 C.F.R. §§ 1.56 and 1.97-98 of the Rules of Practice in Patent Cases, enclosed herewith is form PTO-SB-08 listing several references. The Examiner is requested to make these references of official record in the application. The references cited may be material to examination of the application and are submitted in compliance with Applicant's duty of disclosure as defined by 37 C.F.R. § 1.56.

No representation is made or intended as to the completeness of this list, nor is the inclusion of any reference on this list an admission that it is prior art or pertinent to this application.

Applicant believes no fee is due with this submission. If a fee is due, however, the Commissioner is hereby authorized to charge any necessary fee to Account Number 06-0600.

Respectfully submitted,

Stacey C. Lum

Dated: May 23, 2008

By: /Brent K. Whitlock, Reg. No. 61,371/

Brent K. Whitlock, Reg. No. 61,371
Carr & Ferrell *LLP*
2200 Geng Road
Palo Alto, CA 94303
TEL: (650) 812-3400
FAX: (650) 812-3444

Electronic Acknowledgement Receipt

EFS ID:	3354377
Application Number:	10949179
International Application Number:	
Confirmation Number:	4744
Title of Invention:	Systems and methods of controlling network access
First Named Inventor/Applicant Name:	Stacey C. Lum
Customer Number:	22830
Filer:	Brent K. Whitlock
Filer Authorized By:	
Attorney Docket Number:	PA2836US
Receipt Date:	23-MAY-2008
Filing Date:	24-SEP-2004
Time Stamp:	19:31:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed	PA2836US_IDS_statement.pdf	86447 f21fe83bb252d227a2f2796b904fb4e6dd039152	no	2

Warnings:

Information:

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Total Files Size (in bytes):	86447

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/949,179	Filing Date 09/24/2004	☐ To be Mailed

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	05/23/2008	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 82	Minus	** 60	= 22	X $25 =	550	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 9	Minus	***6	= 3	X $105 =	315	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	865	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Trina Steptoe/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
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www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

22830 7590 07/11/2008

CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

EXAMINER	
SONG, HOSUK	
ART UNIT	PAPER NUMBER
2135	

DATE MAILED: 07/11/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

TITLE OF INVENTION: SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$720	$300	$0	$1020	10/14/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

CISCO SYSTEMS, INC.
FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 187 of 316

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22830 7590 07/11/2008

CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

TITLE OF INVENTION: SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$720	$300	$0	$1020	10/14/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
SONG, HOSUK	2135	726-001000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____

2_____

3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

22830 7590 07/11/2008

CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

EXAMINER
SONG, HOSUK

ART UNIT	PAPER NUMBER
2135	

DATE MAILED: 07/11/2008

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 827 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 827 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

CISCO SYSTEMS, INC.
FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 189 of 316

Notice of Allowability	Application No.	Applicant(s)	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment filed on 5/23/08*.

2. ☒ The allowed claim(s) is/are *3,6-12,16-30,32-40,42-51,53-56,58 and 60-94*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 5/23/08
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/HOSUK SONG/
Primary Examiner, Art Unit 2135

CISCO SYSTEMS, INC.
FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 190 of 316

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

SEARCHED			
Class	Subclass	Date	Examiner
726	1-4,12	7/2/2008	HS
726	15,23-24	7/2/2008	HS
713	150,153	7/2/2008	HS
713	168	7/2/2008	HS
709	225	7/2/2008	HS
709	228-229	7/2/2008	HS

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
726	**1-4,12,15**	7/2/2008	**HS**
726	23-24	7/2/2008	HS
713	150,153	7/2/2008	HS
USPGPUB see printout		7/2/08	HS

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
EAST, foreign patent database IBM TDB	7/2/2008	HS
NPL	7/2/2008	HS

U.S. Patent and Trademark Office

Part of Paper No. 20080702

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S916	966	726/1.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:04
S917	1061	726/2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:04
S918	994	726/3.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:05
S919	1801	726/4.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:05
S920	473	726/12.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:05
S921	398	726/15.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:05
S922	828	726/23.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:05
S923	713	726/24.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:05

S924	803	713/150.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:05
S925	959	713/153.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:06
S926	2344	713/168.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:06
S927	3419	709/225.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:06
S928	2385	709/228.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:06
S929	4034	709/229.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/07/02 16:06
S930	24	access$4 adj3 device and (subnetwork or sub adj3 network) and gatekeeper and policy	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:14
S931	369	access$4 adj3 device and (subnetwork or sub adj3 network) and VPN	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:15
S932	590	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:15

S933	350	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and policy	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:17
S934	26	(VLAN or virtual adj3 local adj3 area adj4 network) and (config$8 or reconfig$8) near4 (port) and gatekeeper	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:18
S935	11	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S916	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:20
S936	6	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S917	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:20
S937	9	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S918	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:20

S938	15	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S919	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:21
S939	13	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S920	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:21
S940	10	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S921	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:21
S941	10	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S922	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:22
S942	4	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S923	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:22

S943	3	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S924	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:22
S944	11	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S925	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:22
S945	4	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S926	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:22
S946	15	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S927	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:22
S947	14	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S928	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:22

S948	14	access$4 adj3 (device or apparatus or server or computer) and (subnetwork or sub adj3 network) and VPN and S929	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/07/02 16:22
S949	468	(policy and access $4 and protect$4 and network anf gatekeeper and subset and restrict $4 and (device or computer or apparatus or server) and security and request$4 and audit and less). CLM.	US-PGPUB; USPAT	OR	ON	2008/07/02 16:26
S950	468	(policy and access $4 and protect$4 and network anf gatekeeper and subset and restrict $4 and (device or computer or apparatus or server) and security and request$4 and auditor and configur$6 and requirement and grant$5 and less). CLM.	US-PGPUB; USPAT	OR	ON	2008/07/02 16:27
S951	1	(policy and access $4 and protect$4 and network and gatekeeper and subset and restrict $4 and (device or computer or apparatus or server) and security and request$4 and auditor and configur$6 and	US-PGPUB; USPAT	OR	ON	2008/07/02 16:28

		requirement and grant$5 and less). CLM.				

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PTO/SB/08a (03-08)
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	Application Number	10949179
	Filing Date	2004-09-24
	First Named Inventor	Lum
	Art Unit	2135
	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6006259		1999-12-21	Adelman et al.	

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	1	20070064689		2007-03-22	Shin et al.	
	2	20030191966		2003-10-09	Gleichauf	
	3	20080060067		2008-03-06	Kim et al.	

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	Filing Date	2004-09-24
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	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

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Examiner Signature	/Hosuk Song/	Date Considered	07/02/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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Index of Claims	Application/Control No.	Applicant(s)/Patent under Reexamination
	10/949,179	LUM, STACEY C.
	Examiner	**Art Unit**
	HOSUK SONG	2135

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date								
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Issue Classification	Application/Control No. 10/949,179	Applicant(s)/Patent under Reexamination LUM, STACEY C.
	Examiner HOSUK SONG	Art Unit 2135

ISSUE CLASSIFICATION

ORIGINAL		INTERNATIONAL CLASSIFICATION								
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED			
726	1	H	04	L	9	/00				/
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---------- (Assistant Examiner) (Date)	/Hosuk Song/ 7/2/08 (Primary Examiner) (Date)	Total Claims Allowed: 82
(Legal Instruments Examiner) (Date)		O.G. Print Claim(s) 1 / O.G. Print Fig. 2

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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	1		31	6	61	78	91		121		151		181
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22	30	82	60	77	90		120		150		180		210

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Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

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	Application Number	10949179
	Filing Date	2004-09-24
	First Named Inventor	Lum
	Art Unit	2135
	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

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	1	6769000	B1	2004-07-27	Akhtar et al.	

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	1	20040193912	A1	2004-09-30	Li et al.	
	2	20050044197	A1	2005-02-24	Lai	
	3	20020120749	A1	2002-08-29	Widegren et al.	

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	Filing Date	2004-09-24
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	Art Unit	2135
	Examiner Name	Hosuk Song
	Attorney Docket Number	PA2836US

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1 Establishing pairwise keys in distributed sensor networks
Donggang Liu, Peng Ning, Rongfang Li
February 2005 ACM Transactions on Information and System Security (TISSEC), Volume 8 Issue 1
Publisher: ACM
Full text available: pdf(631.47 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 34, Downloads (12 Months): 275, Citation Count: 8

Pairwise key establishment is a fundamental security service in sensor networks; it enables sensor nodes to communicate securely with each other using cryptographic techniques. However, due to the resource constraints on sensor nodes, it is not feasible ...

Keywords: Sensor networks, key management, key predistribution, pairwise key

2 BISS: building secure routing out of an incomplete set of security associations
Srdjan Čapkun, Jean-Pierre Hubaux
September 2003 WiSe '03: Proceedings of the 2nd ACM workshop on Wireless security
Publisher: ACM
Full text available: pdf(197.36 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 4, Downloads (12 Months): 67, Citation Count: 3

We investigate secure routing in ad hoc networks in which security associations exist only between a subset of all pairs of nodes. We focus on source routing protocols. We show that to establish secure routes, it is in general not necessary that security ...

Keywords: ad hoc networks, mobility, routing, security, security associations

3 Improving key predistribution with deployment knowledge in static sensor networks
Donggang Liu, Peng Ning
November 2005 ACM Transactions on Sensor Networks (TOSN), Volume 1 Issue 2
Publisher: ACM
Full text available: pdf(639.52 KB) Additional Information: full citation, abstract, references, cited by, index terms

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IPR2024-00675
Ex. 1502, p. 206 of 316

Bibliometrics: Downloads (6 Weeks): 22, Downloads (12 Months): 185, Citation Count: 1

Pairwise key establishment is a fundamental security service for sensor networks. However, establishing pairwise keys in sensor networks is a challenging problem, particularly due to the resource constraints on sensor nodes and the threat of node compromises. ...

Keywords: Sensor networks, key management, key predistribution

4 Network security architecture
Mohamad R. Neilforoshan
April 2004 Journal of Computing Sciences in Colleges, Volume 19 Issue 4
Publisher: Consortium for Computing Sciences in Colleges
Full text available: pdf(34.63 KB) Additional Information: full citation, abstract, references

Bibliometrics: Downloads (6 Weeks): 44, Downloads (12 Months): 238, Citation Count: 0

One of the areas that should receive substantial attention in the CS curriculum is network security. The fact is that most CS curricula treat this issue as a subset of a course in networking, whereas it deserves its own place among other courses in the ...

5 Establishing pairwise keys in distributed sensor networks
Donggang Liu, Peng Ning
October 2003 CCS '03: Proceedings of the 10th ACM conference on Computer and communications security
Publisher: ACM
Full text available: pdf(253.06 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 16, Downloads (12 Months): 102, Citation Count: 50

Pairwise key establishment is a fundamental security service in sensor networks; it enables sensor nodes to communicate securely with each other using cryptographic techniques. However, due to the resource constraints on sensors, it is infeasible to ...

Keywords: key management, probabilistic key sharing, sensor networks

6 Classification of malicious host threats in mobile agent computing
Elmarie Bierman, Elsabe Cloete
September 2002 SAICSIT '02: Proceedings of the 2002 annual research conference of the South African institute of computer scientists and information technologists on Enablement through technology
Publisher: South African Institute for Computer Scientists and Information Technologists
Full text available: pdf(160.29 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 27, Downloads (12 Months): 278, Citation Count: 2

Full-scale adoption of mobile agent technology in untrustworthy network environments, such as the Internet, has been delayed by several security complexities [Montanari, 2001]. Presently, there is a large array of security issues and sub-issues within ...

Keywords: computer networks, malicious hosts, mobile agents, security, threats classification

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FORTINET, INC.

7 Salsa: a structured approach to large-scale anonymity
Arjun Nambiar, Matthew Wright
October 2006 CCS '06: Proceedings of the 13th ACM conference on Computer and communications security
Publisher: ACM
Full text available: pdf(363.21 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 31, Downloads (12 Months): 179, Citation Count: 0

Highly distributed anonymous communications systems have the promise to reduce the effectiveness of certain attacks and improve scalability over more centralized approaches. Existing approaches, however, face security and scalability issues. Requiring ...

Keywords: anonymous communications, networks, peer-to-peer networks, privacy

8 Fast payload-based flow estimation for traffic monitoring and network security
Fang Hao, Murali Kodialam, T. V. Lakshman, Hui Zhang
October 2005 ANCS '05: Proceedings of the 2005 ACM symposium on Architecture for networking and communications systems
Publisher: ACM
Full text available: pdf(188.42 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 2, Downloads (12 Months): 70, Citation Count: 0

Real-time IP flow estimation has many potential applications in network management, monitoring, security, and traffic engineering. Existing techniques typically rely on flow definitions being constrained as subsets of the fields in packet headers. This ...

Keywords: network security, traffic estimation, traffic monitoring

9 Holistic VoIP intrusion detection and prevention system
Mohamed Nassar, Saverio Niccolini, Radu State, Thilo Ewald
July 2007 IPTComm '07: Proceedings of the 1st international conference on Principles, systems and applications of IP telecommunications
Publisher: ACM
Full text available: pdf(464.70 KB) Additional Information: full citation, abstract, references

Bibliometrics: Downloads (6 Weeks): 61, Downloads (12 Months): 167, Citation Count: 0

VoIP security is crucial for current and future networks and services. The rapid shift from a closed and confined telephony towards an all IP network supporting end to end VoIP services provides major challenges to the security plane. Faced with multiple ...

10 Universally composable two-party and multi-party secure computation
Ran Canetti, Yehuda Lindell, Rafail Ostrovsky, Amit Sahai
May 2002 STOC '02: Proceedings of the thiry-fourth annual ACM symposium on Theory of computing
Publisher: ACM
Full text available: pdf(250.32 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 4, Downloads (12 Months): 85, Citation Count: 16

We show how to securely realize any multi-party functionality in a *universally*

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FORTINET, INC.

composable way, regardless of the number of corrupted participants. That is, we consider a multi-party network with open communication and an adversary that can adaptively ...

11 A predator prey approach to the network structure of cyberspace
Sean P. Gorman, Rajendra G. Kulkarni, Laurie A. Schintler, Roger R. Stough
January 2004 WISICT '04: Proceedings of the winter international synposium on Information and communication technologies
Publisher: Trinity College Dublin
Full text available: pdf(94.98 KB) Additional Information: full citation, abstract, references

Bibliometrics: Downloads (6 Weeks): 7, Downloads (12 Months): 43, Citation Count: 0

In light of the rise of malicious attacks on the Internet and the various networks and applications attached to it, new approaches towards modeling predatory activity in networks is called for. Past research has simulated networks assuming that all nodes ...

12 The shunt: an FPGA-based accelerator for network intrusion prevention
Nicholas Weaver, Vern Paxson, Jose M. Gonzalez
February 2007 FPGA '07: Proceedings of the 2007 ACM/SIGDA 15th international symposium on Field programmable gate arrays
Publisher: ACM
Full text available: pdf(240.27 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 13, Downloads (12 Months): 184, Citation Count: 0

The sophistication and complexity of analysis performed by today's network intrusion prevention systems (IPSs) benefits greatly from implementation using general-purpose CPUs. Yet the performance of such CPUs increasingly lags behind that necessary to ...

Keywords: FPGA, NIC, hardware acceleration, intrusion detection

13 Securing the AODV protocol using specification-based intrusion detection
Hoda M. Hassan, Mohy Mahmoud, Sherif El-Kassas
October 2006 Q2SWinet '06: Proceedings of the 2nd ACM international workshop on Quality of service & security for wireless and mobile networks
Publisher: ACM
Full text available: pdf(216.33 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 7, Downloads (12 Months): 157, Citation Count: 0

This paper presents an implementation of an Intrusion Detection System (IDS) aiming to secure the AODV protocol designed for MANET. The IDS is designed as multiple static agents that run on a subset of the nodes in the network and executes a monitoring ...

Keywords: AODV, IDS, network monitoring, specification-based detection

14 A type system for object initialization in the Java bytecode language
Stephen N. Freund, John C. Mitchell
November 1999 ACM Transactions on Programming Languages and Systems (TOPLAS), Volume 21 Issue 6
Publisher: ACM

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Full text available: pdf(394.88 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 1, Downloads (12 Months): 41, Citation Count: 19

In the standard Java implementation, a Java language program is compiled to Java bytecode. This bytecode may be sent across the network to another site, where it is then executed by the Java Virtual Machine. Since bytecode may be written by hand, or ...

Keywords: Java, bytecode languages, object initialization, type checking

15 Camouflaged fraud detection in domains with complex relationships
Sankar Virdhagriswaran, Gordon Dakin
August 2006 KDD '06: Proceedings of the 12th ACM SIGKDD international conference on Knowledge discovery and data mining
Publisher: ACM
Full text available: pdf(1.58 MB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 9, Downloads (12 Months): 120, Citation Count: 0

We describe a data mining system to detect frauds that are camouflaged to look like normal activities in domains with high number of known relationships. Examples include accounting fraud detection for rating and investment, insider attacks on corporate ...

Keywords: accounting fraud, on-line intrusion analysis

16 Advance reservations: a theoretical and practical comparison of GUR & HARC
Yixin Wu, Maria Cristina Tugurlan, Gabrielle Allen
January 2008 MG '08: Proceedings of the 15th ACM Mardi Gras conference: From lightweight mash-ups to lambda grids: Understanding the spectrum of distributed computing requirements, applications, tools, infrastructures, interoperability, and the incremental adoption of key capabilities
Publisher: ACM
Full text available: pdf(48.04 KB) Additional Information: full citation, abstract

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 30, Citation Count: 0

Grid computing has provided new capabilities for connecting distributed computing nodes, experimental instruments, visualization facilities, data storage and people across high speed networks. Emerging communities of "e-Scientists" are now building cyber-infrastructures ...

17 Decentralized Trust Management
Matt Blaze, Joan Feigenbaum, Jack Lacy
May 1996 SP '96: Proceedings of the 1996 IEEE Symposium on Security and Privacy
Publisher: IEEE Computer Society
Full text available: Publisher Site Additional Information: full citation, abstract, cited by

Bibliometrics: Downloads (6 Weeks): n/a, Downloads (12 Months): n/a, Citation Count: 115

We identify the trust management problem as a distinct and important component of security in network services. Aspects of the trust management problem include formulating security policies and security credentials, determining whether particular sets ...

CISCO SYSTEMS, INC. IPR2024-00675 Ex. 1502, p. 210 of 316
FORTINET, INC.

18 Local networking and internetworking in the V-system
David R. Cheriton
October 1983 ACM SIGCOMM Computer Communication Review, Volume 13 Issue 4
Publisher: ACM
Full text available: pdf(896.12 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 0, Downloads (12 Months): 30, Citation Count: 3

Local networking can be treated as a subset of internetworking for remote terminal access and file transfer. However, a distributed operating system, such as the V-System uses a local network more as an extended backplane than a fast, ...

19 Local networking and internetworking in the V-system
David R. Cheriton
October 1983 SIGCOMM '83: Proceedings of the eighth symposium on Data communications
Publisher: ACM
Full text available: pdf(896.12 KB) Additional Information: full citation, abstract, references, cited by, index terms

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Local networking can be treated as a subset of internetworking for remote terminal access and file transfer. However, a distributed operating system, such as the V-System uses a local network more as an extended backplane than a fast, ...

20 A type system for object initialization in the Java bytecode language
Stephen N. Freund, John C. Mitchell
October 1998 ACM SIGPLAN Notices, Volume 33 Issue 10
Publisher: ACM
Full text available: pdf(1.91 MB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 2, Downloads (12 Months): 19, Citation Count: 20

In the standard Java implementation, a Java language program is compiled to Java bytecode. This bytecode may be sent across the network to another site, where it is then interpreted by the Java Virtual Machine. Since bytecode may be written by hand, ...

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

22830 7590 07/29/2008
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

EXAMINER
SONG, HOSUK

ART UNIT	PAPER NUMBER
2135	

MAIL DATE	DELIVERY MODE
07/29/2008	PAPER

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10949179	9/24/2004	LUM, STACEY C.	PA2836US

EXAMINER
HOSUK SONG

ART UNIT	PAPER
2135	20080723

DATE MAILED:

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Examiner has considered IDS dated 4/4/05 and NPL document filed on 7/10/07.

/HOSUK SONG/
Primary Examiner, Art Unit 2135

PTO-90C (Rev.04-03)

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

OIPE JC166
APR 0 4 2005
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2661
Examiner Name	Unknown
Attorney Docket Number	PA2836US
Total Number of Pages in This Submission	7

ENCLOSURES *(Check all that apply)*

- [ ] Fee Transmittal Form
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Signature			
Printed name	Steven M. Colby		
Date	March 31, 2005	Reg. No.	50,250

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OIPE JC16
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IN THE

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):	Stacey C. Lum
APPLICATION NO.:	10/949,179
FILED:	September 24, 2004
TITLE:	Systems and Methods of Controlling Network Access
EXAMINER:	Unknown
GROUP ART UNIT:	2661
ATTY.DKT.NO.:	PA2836US

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Respectfully submitted,
Stacey C. Lum

Dated: March 31, 2005

By: _____

Steven M. Colby, Reg. No. 50,250
Carr & Ferrell *LLP*
2200 Geng Road
Palo Alto, CA 94303
TEL: (650) 812-3400
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Sheet 1 of 1

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2661
Examiner Name	Unknown
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5,968,176	10-19-1999	Nessett et al.	
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IN THE

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):	Stacey C. Lum
APPLICATION NO.:	10/949,179
FILED:	September 24, 2004
TITLE:	Systems and Methods of Controlling Network Access
EXAMINER:	Kim Y. Vu
GROUP ART UNIT:	2135
ATTY.DKT.NO.:	PA2836US

INFORMATION DISCLOSURE STATEMENT
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Stacey C. Lum

Dated: July 10, 2007

By: _____

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Carr & Ferrell *LLP*
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Palo Alto, CA 94303
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APPLICANT(S):	Stacey C. Lum
APPLICATION NO.:	10/949,179
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Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,834,414	12-28-2004	Chiu	
		US- 2,519,435	08-22-1950	Byrd, Jr.	
		US- 3,100,664	08-13-1963	Duval	
		US- 1,830,383	11-03-1931	Bos	
		US- 1,860,326	05-24-1932	Jackson	
		US- 2,131,067	09-27-1938	Paden	
		US- 2,247,592	07-01-1941	Swift	
		US- 2,731,056	01-17-1956	Anson	
		US- 3,701,557	10-31-1972	Centofante	
		US- 5,010,622	04-30-1991	Morita	
		US- 4,181,339	01-01-1980	Rigsby	
		US- 4,951,984	08-28-1990	Huang	
		US- 5,701,635	12-30-1997	Hawkes	
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		US- 6,044,402	03-28-2000	Jacobson et al.	
		US- 6,304,973	10-16-2001	Williams	
		US- 6,393,484	05-21-2002	Massarani	
		US- 6,363,489	05-26-2002	Comay et al.	

FOREIGN PATENT DOCUMENTS

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		WO 2006/029217 A2	03-16-2006	Swan Labs Corporation		

Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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Sheet 2 of 3

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Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,745,333	06-01-2004	Thomsen	
		US- 2002/0010869	01-24-2002	Kim	
		US- 2003/0023880	01-30-2003	Edwards et al.	
		US- 2003/0046586	03-06-2003	Bheemarasetti et al.	
		US- 2003/0126464	07-03-2003	McDaniel et al.	
		US- 2003/0208694	11-06-2003	Fang	
		US- 2004/0054926	03-18-2004	Ocepek et al.	
		US- 2004/0098610	05-20-2004	Hrastar	
		US- 2004/0103314	05-27-2004	Liston	
		US- 2004/0162994	08-19-2004	Cohen et al.	
		US- 2004/0181690	09-16-2004	Rothermel et al.	
		US- 2004/0243835	12-02-2004	Terzis et al.	
		US- 2005/0027837	02-03-2005	Roese et al.	
		US- 2005/0050365	03-03-2005	Seki et al.	
		US- 2005/0278775	12-15-2005	Ross	
		US- 2006/0095968	05-04-2006	Portolani et al.	
		US- 2006/0161970	07-20-2006	Hopen et al.	
		US- 2006/0164199	07-27-2006	Gilde et al.	
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 3

	Complete if Known
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		"Packet Fence Overview," PacketFence™, located at http://www.packetfence.org, date unknown. 2006	
		"Network Access Control from Mirage Networks," Mirage Networks, 2006.	
		Whalen, S., "An Introduction to ARP Spooling," April 2001, Revision 1.82, located at http://www.node99.org/projects/arpspoof/	

Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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PTO/SB/08A (09-06)
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U. S. PATENT DOCUMENTS

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		US- 6,834,414	12-28-2004	Chiu	
		US- 2,519,435	08-22-1950	Byrd, Jr.	
		US- 3,100,664	08-13-1963	Duval	
		US- 1,830,383	11-03-1931	Bos	
		US- 1,860,326	05-24-1932	Jackson	
		US- 2,131,067	09-27-1938	Paden	
		US- 2,247,592	07-01-1941	Swift	
		US- 2,731,056	01-17-1956	Anson	
		US- 3,701,557	10-31-1972	Centofante	
		US- 5,010,622	04-30-1991	Morita	
		US- 4,181,339	01-01-1980	Rigsby	
		US- 4,951,984	08-28-1990	Huang	
		US- 5,701,635	12-30-1997	Hawkes	
		US- 5,944,368	08-31-1999	Hastings	
		US- 5,606,668	02-25-1997	Shwed	
		US- 6,044,402	03-28-2000	Jacobson et al.	
		US- 6,304,973	10-16-2001	Williams	
		US- 6,393,484	05-21-2002	Massarani	
		US- 6,363,489	05-26-2002	Comay et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 2006/029217 A2	03-16-2006	Swan Labs Corporation		

Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 3

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

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		US- 6,745,333	06-01-2004	Thomsen	
		US- 2002/0010869	01-24-2002	Kim	
		US- 2003/0023880	01-30-2003	Edwards et al.	
		US- 2003/0046586	03-06-2003	Bheemarasetti et al.	
		US- 2003/0126464	07-03-2003	McDaniel et al.	
		US- 2003/0208694	11-06-2003	Fang	
		US- 2004/0054926	03-18-2004	Ocepek et al.	
		US- 2004/0098610	05-20-2004	Hrastar	
		US- 2004/0103314	05-27-2004	Liston	
		US- 2004/0162994	08-19-2004	Cohen et al.	
		US- 2004/0181690	09-16-2004	Rothermel et al.	
		US- 2004/0243835	12-02-2004	Terzis et al.	
		US- 2005/0027837	02-03-2005	Roese et al.	
		US- 2005/0050365	03-03-2005	Seki et al.	
		US- 2005/0278775	12-15-2005	Ross	
		US- 2006/0095968	05-04-2006	Portolani et al.	
		US- 2006/0161970	07-20-2006	Hopen et al.	
		US- 2006/0164199	07-27-2006	Gilde et al.	
		US-			

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Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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Sheet 3 of 3

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Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2135
Examiner Name	Kim Y. Vu
Attorney Docket Number	PA2836US

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		"Packet Fence Overview," PacketFence™, located at http://www.packetfence.org, date unknown. 2006	
		"Network Access Control from Mirage Networks," Mirage Networks, 2006.	
		Whalen, S., "An Introduction to ARP Spooling," April 2001, Revision 1.82, located at http://www.node99.org/projects/arpspoof/	

Examiner Signature	/Hosuk Song/	Date Considered	02/25/2008

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Stacey C. Lum

APPLICATION NO.: 10/949,179

FILED: September 24, 2004

TITLE: Systems and Methods of Controlling Network Access

EXAMINER: Kim Y. Vu

GROUP ART UNIT: 2135

ATTY.DKT.NO.: PA2836US

MAIL STOP AMENDMENT
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

List of Co-Pending Patent Applications That May Be Directed Towards Similar Subject Matter

Examiner's Initials	Serial Number	First-Named Inventor	Title	Filing Date
	11/227,679	Stacey C. Lum	Dynamic Address Assignment For Access Control on DHCP Networks	September 14, 2005
	11/433,225	Stacey C. Lum	Network Access Control Management	May 11, 2006
Examiner's Signature:	/Hosuk Song/			Date 02/25/2008

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APPLICANT: Stacey C. Lum

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FILED: September 24, 2004

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EXAMINER: Kim Y. Vu

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OIPE JC168
APR 0 4 2005
PATENT & TRADEMARK OFFICE

PTO/SB/08A (08-03)
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Sheet 1 of 1

Complete if Known	
Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2661
Examiner Name	Unknown
Attorney Docket Number	PA2836US

U. S. PATENT DOCUMENTS

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/HS/		US- 5,968,176	10-19-1999	Nessett et al.	
		US-			
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8/13/08

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

22830 7590 09/24/2008
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

EXAMINER
SONG, HOSUK

ART UNIT	PAPER NUMBER
2135	

MAIL DATE	DELIVERY MODE
09/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Supplemental Notice of Allowability	Application No. 10/949,179	Applicant(s) LUM, STACEY C.	
	Examiner HOSUK SONG	Art Unit 2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.

2. ☒ The allowed claim(s) is/are *3,6-12,16-30,32-40,42,51,53-56,58 and 60-94*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *9/18/08* .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/HOSUK SONG/ Primary Examiner, Art Unit 2135	

Interview Summary	Application No.	Applicant(s)	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

All participants (applicant, applicant's representative, PTO personnel):

(1) *H. Song*. (3)_____.

(2) *Mr. Whitlock*. (4)_____.

Date of Interview: *9/15//08*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *32,39,44,45,51 and 60*.

Identification of prior art discussed: *None*.

Agreement with respect to the claims f)☒ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Applicant has requested Examiner's Amendment to correct lack of antecedent basis. Examiner will send out a Supplemental Notice of Allowability along with Examiner's Amendment.*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/HOSUK SONG/ Primary Examiner, Art Unit 2135	

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Whitlock on 9/15/08.

The application has been amended as follows:

Claim 32. A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port configured for communicating between the access device and a restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request;

reconfiguring the communication port for communicating <u>data</u> between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied;

reading an administrator specified configuration of the communication port from the access point; and

storing the read administrator specified configuration.

Claim 39. A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port

of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request;

reconfiguring the communication port for communicating data between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied; and

communicating between the gatekeeper and an agent executing on the access device to monitor security status of the access device after reconfiguring the communication port for communicating between the access device and the less less-restricted subset.

Claim 44. A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request;

reconfiguring the communication port for communicating data between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy

are satisfied; and

selecting the security policy from among a plurality of security policies, the selecting being responsive to an identity of elements within the less-restricted subset of the protected network to which access is requested.

Claim 45. A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

applying a security policy to the access device, responsive to the request;

reconfiguring the communication port for communicating data between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied; and

updating the access device if requirements of the security policy are not satisfied.

Claim 51. A method of granting access to a protected network, the method comprising:

receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a

gatekeeper and being characterized by an access control list, the access to the restricted subset of the protected network being responsive to the access control list;

applying a security policy to the access device, responsive to the request; and

reconfiguring the communication port for communicating data between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied.

Claim 60. A computer readable medium including computer code configured for controlling access to a computer network, the computer code comprising:

a code segment configured for receiving a request for access to a less-restricted subset of the protected network from an access device, the request being received through a communication port of an access point, the communication port configured for communicating between the access device and a restricted subset of the protected network, the restricted subset including a gatekeeper;

a code segment configured for applying a security policy to the access device, responsive to the request;

a code segment configured for reconfiguring the communication port for communicating data between the access device and the less-restricted subset of the protected network without passing the data through the gatekeeper, if requirements of the security policy are satisfied;

a code segment configured for reading an administrator specified configuration of the communication port from the access point; and

a code segment configured for storing the read administrator specified configuration.

USPTO Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOSUK SONG whose telephone number is 5712723857. The examiner can normally be reached on mon-fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KIM VU can be reached on 5712723859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HOSUK SONG/
Primary Examiner, Art Unit 2135

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2135	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS:	Stacey C. Lum
APPLICATION NO.:	10/949,179
CONF. NO.:	4744
TITLE:	Systems and Methods of Controlling Network Access
FILING DATE:	September 24, 2004
EXAMINER:	Hosuk Song
ART UNIT:	2135
ATTY. DKT. NO.:	PA2836US

MAIL STOP ISSUE FEE
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

INTERVIEW SUMMARY STATEMENT

Examiner Song:

In regards to our telephone conversation on September 15, 2008, Applicant submits herewith a **statement of the substance of the interview** per MPEP § 713.04.

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FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 242 of 316

INTERVIEW SUMMARY

Applicant's agent (Brent K. Whitlock, Reg. No. 61,371) and Examiner Song conducted a telephonic interview on September 15, 2008. During the interview, Applicant's agent requested that the word "data" be inserted in each of claims 32, 39, 44, 45, 51, and 60 by Examiner's Amendment. The word "data" was requested to be inserted after "communicating" and before "between the access device and the less-restricted subset" to provide proper antecedent basis for "the data" later in the same claim.

The requested amendments are supported by the specification as filed (e.g., paragraphs [0018], [0051], and claim 53). Thus, no new matter is introduced by the requested amendments.

Examiner Song agreed to insert the word "data" where requested in the aforementioned claims by Examiner's Amendment. Applicant thanks Examiner Song for the interview and his willingness to make these requested amendments.

Respectfully submitted,

Stacey C. Lum

Date: October 9, 2008

By: /Brent K. Whitlock, Reg. No. 61,371/

Brent K. Whitlock, Ph.D., Reg. No. 61,371
Carr & Ferrell LLP
2200 Geng Road
Palo Alto, California 94303
Phone (650) 812-3400
FAX (650) 812-3444

CISCO SYSTEMS, INC.
FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 243 of 316

Electronic Acknowledgement Receipt

EFS ID:	4090922
Application Number:	10949179
International Application Number:	
Confirmation Number:	4744
Title of Invention:	SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS
First Named Inventor/Applicant Name:	Stacey C. Lum
Customer Number:	22830
Filer:	Brent K. Whitlock
Filer Authorized By:	
Attorney Docket Number:	PA2836US
Receipt Date:	09-OCT-2008
Filing Date:	24-SEP-2004
Time Stamp:	19:09:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant summary of interview with examiner	PA2836US_Examiner_Interview_Summary.pdf	27279 f0696c255e139b3041aa4ee000597bfdcf3033c7	no	2

Warnings:

Information:

Total Files Size (in bytes):	27279

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/30EFS (09-08)
Approved for use through 10/31/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	10949179	Filing Date	2004-09-24	Docket Number (if applicable)	PA2836US	Art Unit	2135
First Named Inventor	Stacey C. Lum			Examiner Name	Hosuk Song		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☒ Other Drawings

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
Deposit Account No 060600

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature
☐ Applicant Signature

PTO/SB/30EFS (09-08)
Approved for use through 10/31/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Brent K. Whitlock, Reg. No. 61,371/	Date (YYYY-MM-DD)	2008-10-09
Name	Brent K. Whitlock, PhD	Registration Number	61371

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Stacey C. Lum
APPLICATION NO.:	10/949,179
TITLE:	Systems and Methods of Controlling Network Access
FILING DATE:	September 24, 2004
EXAMINER:	Hosuk Song
ART UNIT:	2135
CONF. NO:	4744
ATTY. DKT. NO.:	PA2836US

Amendment B and Request for Continued Examination

Please enter the following amendments to the **specification**, which commence on **page two**, and amendments to the **drawings**, which are enclosed herewith and discussed on **page six.** The Applicant's **remarks** may be found on **page seven**. The Applicant's **conclusion** may be found on **page eight**.

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IN THE SPECIFICATION

Please add the following new paragraphs between paragraphs [0025] and [0026].

[0025.1] FIG. 5 is a block diagram showing EAP over 802.1x/Radius.

[0025.2] FIG. 6A is a block diagram showing a client in authentication state.

[0025.3] FIG. 6B is a block diagram showing a server in authentication state.

[0025.4] FIG. 7 is a block diagram showing a server changing to audit state.

[0025.5] FIG. 8A is a block diagram showing a server in audit state.

[0025.6] FIG. 8B is a block diagram showing a client responding to audit requests.

[0025.7] FIG. 9 is a block diagram showing a system in 802.1x mode where normal traffic does not traverse CGS.

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IPR2024-00675
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Please add the following new paragraphs between paragraphs [0065] and [0066].

[0065.1] According to embodiments like that disclosed in U.S. Provisional Patent Application No. 60/513,080, the disclosure of which has been incorporated herein by reference, an AP (*e.g.*, a switch or wireless access point (WAP) which is used to connect end points to the corporate network) may be programmed to prohibit access by the PC (*e.g.*, notebook, desktop PC, PDA, or similar computing device) to the corporate network until authentication with the authentication server passes AND an audit with the software agent with the GK (*e.g.*, software that acts as a gatekeeper by granting or denying access to the corporate network from end points after auditing the end point based on certain criteria) passes, while still supporting the existing encryption and authentication functionality. The method used to support auditing functionality over the existing 802.1x protocol implementation is complicated and not an obvious variation of the 802.1x protocol.

[0065.2] According to an embodiment like that disclosed in U.S. Provisional Patent Application No. 60/513,080, the disclosure of which has been incorporated herein by reference, the auditing protocol takes place between the EP (*e.g.*, end point which can either be a PC or network device) agent software and the GK. A client filter redirects calls for audit information to an agent on the EP and sends the responses to the 802.1x compliant AP which relays them to the EAP server. The EAP server then calls a server filter which sends the responses to the GK for evaluation. The GK sends requests for more information on the reverse path and this continues until the audit is completed. If the audit is successful, the server sends a message to the AP which enables the EP's port allowing access for the PC. If the audit fails, the port on the AP is left disabled.

[0065.3] According to an exemplary embodiment, client filters (CF) and server filters (SF) are added along with an agent and GK to perform audits, as highlighted in FIG. 5. There may be one or more instances of the CF and SF, which correspond to the separate EAP Authentication Modules (EAPM) that are supported. Note that the agent and GK

are logical components. The functionality of the agent and GK can be embedded into the CF and SF, respectively, or in the case of the GK, may reside on a separate server.

[0065.4] The CF and SF APIs have APIs which correspond to the EAPM APIs. Therefore, the EAP Client Layer (ECL) or EAP Server Layer (ESL) can call the CF and SF instances corresponding to a particular authentication method as shown in FIGs. 6A and 6B. To the ECL and ESL, each instance of the CF and SF appears to be an EAPM which incorporates the functionality of the original EAPM prior to completion of the success response by the server EAPM.

[0065.5] To use the invention as disclosed in U.S. Provisional Patent Application No. 60/513,080, the disclosure of which has been incorporated herein by reference, the ECL and ESL are configured to use the instance of the CF and SF corresponding to the desired authentication method. This authentication method corresponds to an authentication method supported by one of the EAPMs.

[0065.6] The ECL calls the corresponding CF to perform authentication, which at first calls the appropriate EAPM to obtain the proper authentication response. The authentication response is returned by the CF to the ESL, which sends the response to the server's ESL, SF, and EAPM. This process continues until the authentication either succeeds or fails, at which time the server's authentication EAPM returns a success or failure response to the SF.

[0065.7] If the SF receives a success response from the server EAPM as shown in FIG. 7, the SF changes to the audit state and calls GK to obtain audit requests to send back to the client. In this state, the SF returns specially formatted audit requests to the ESL which are passed to the ECL, and eventually to the CF which sends back audit responses to the SF requests.

[0065.8] On the client, audit requests are passed to the agent API instead of to the client EAPM. The agent returns information about the local system, which is converted to audit responses that are sent to the server.

[0065.9] During the audit state, the SF and CF exchange audit requests and responses about the EP as shown in FIGs. 8A and 8B. The ECL and ESL continue to communicate

with the CF and SF, but instead of calling the EAPM, the CF and SF call the agent and GK respectively, to perform this exchange. The audit session continues until the necessary audit information has been passed to the SF.

[0065.10] If the audit indicates the client EP is in compliance, the SF returns a success response. If the VLAN for the EP is specified in the policy, then the VLAN that should be used for this EP is passed back as well.

[0065.11] If the GK determines that the EP has failed the audit, GK returns a failure response to SF which causes one of the following: (1) the SF returns a failure to ECL, and the corresponding port on the AP is left disabled, or (2) the SF returns a success response to the ECL but specifies that the EP should be set to a restricted VLAN where the EP has limited network access. In either case, the EP is isolated from the company network until it successfully passes an audit with the GK.

[0065.12] After the audit has been performed, "keep alives" and updates regarding changes to previous audit information are exchanged. Changes are reevaluated and if inconsistent with the current state, access to the network is modified appropriately by changing the VLAN used for the EP or by terminating access by the EP by communicating with the AP.

IN THE DRAWINGS

The Applicant has added drawings consisting of FIGs. 5, 6A-6B, 7, 8A-8B and 9. The additions to the drawings are included in five new drawing sheets. The new drawings consist of figures previously contained in U.S. Provisional Patent Application No. 60/513,080, previously incorporated by reference, and thus do not contain any new matter. The amendments to the drawings are discussed in more detail below in the Remarks section.

REMARKS

The Applicant submits the amendments to the specification and drawings herein along with an RCE and the required fee. The amendments to the specification and drawings incorporate matter contained in U.S. Provisional Patent Application No. 60/513,080 (the '080 application), previously incorporated by reference, within the present application. Thus, no new matter is added by these amendments.

Amendment to the Specification

The Applicant has amended the specification by adding paragraphs associated with content in the '080 application. None of the amendments to the specification add new matter. New paragraphs 25.1-25.7 describe figures 4, 5a-5b, 6, 7a-7b, and the 802.1x mode figure in the '080 application. With respect to the '080 application, new paragraphs 65.1-65.3 are found on page 6, new paragraph 65.4 is found on page 7, new paragraph 65.5 is found on page 8, new paragraphs 65.6-65.8 are found on page 9, new paragraph 65.9 is found on page 10, and new paragraphs 65.10-65.12 are found on page 11. Certain exemplars referenced in the present application may be found on page 1.

Because the added description content is contained in the '080 application already incorporated by reference, these added paragraphs do not add any new matter.

Amendment to the Drawings

The Applicant has amended the drawings by adding drawings contained in the '080 application. In particular, figures 4, 5a-5b, 6, 7a-7b, and the 802.1x mode figure on page 18 in the '080 application were added as FIGs. 5, 6A-6B, 7, 8A-8B and 9 in the present application, respectively. Because each of these drawings was contained in the '080 application which was previously incorporated by reference, adding the drawings to the present application does not add any new matter.

CONCLUSION

The amendments made herein add matter contained in the '080 application, which was previously incorporated by reference. The amendments, therefore, do not add any new matter. The Applicant therefore respectfully requests that the amendments be entered and a subsequent Notice of Allowance be granted.

The Examiner's prompt attention to this matter is greatly appreciated. Should the Examiner have any questions, the Examiner is invited to contact the Applicant's undersigned representative by telephone.

Respectfully submitted,

October 9, 2008

By: /Brent K. Whitlock, Reg. No. 61,371/

Brent K. Whitlock, Ph.D. (Reg. No. 61,371)
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T: 650.812.3400
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Electronic Patent Application Fee Transmittal

Application Number:	10949179
Filing Date:	24-Sep-2004
Title of Invention:	SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS
First Named Inventor/Applicant Name:	Stacey C. Lum
Filer:	Brent K. Whitlock
Attorney Docket Number:	PA2836US

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**405**

Electronic Acknowledgement Receipt	
EFS ID:	4091140
Application Number:	10949179
International Application Number:	
Confirmation Number:	4744
Title of Invention:	SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS
First Named Inventor/Applicant Name:	Stacey C. Lum
Customer Number:	22830
Filer:	Brent K. Whitlock
Filer Authorized By:	
Attorney Docket Number:	PA2836US
Receipt Date:	09-OCT-2008
Filing Date:	24-SEP-2004
Time Stamp:	19:31:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$405
RAM confirmation Number	5597
Deposit Account	060600
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	PA2836US_RCE_Transmittal.pdf	697215 e0b934e8a63c5af840debd48036f9799385df976	no	3
Warnings:					
Information:					
2	Drawings-only black and white line drawings	PA2836US_New_Drawings.pdf	36738 761dc1c8f1348bb4506fd7091c19f353b7ec6fb8	no	5
Warnings:					
Information:					
3		PA2836US_AmendmentB_RCE.pdf	106783 fdeaa708772b65792e8f854bbd981a7adf328305	yes	8

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment Submitted/Entered with Filing of CPA/RCE	1	1
Specification	2	5
Applicant Arguments/Remarks Made in an Amendment	6	8

Warnings:					
Information:					
4	Fee Worksheet (PTO-06)	fee-info.pdf	30584 d0d829222c27ea37922f994ec936ab10a5c8dd91	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	871320	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

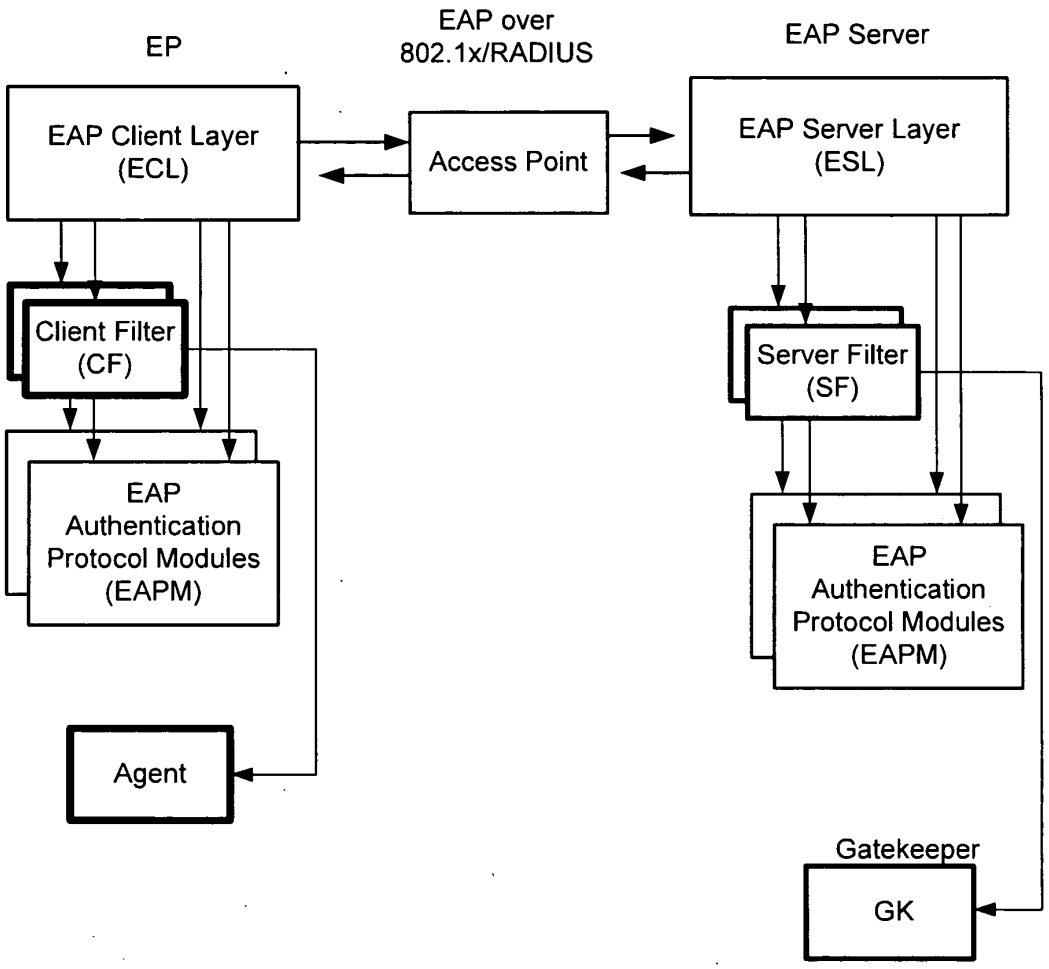
EP
EAP over
802.1x/RADIUS
EAP Server
EAP Client Layer
(ECL)
Access Point
EAP Server Layer
(ESL)
Client Filter
(CF)
Server Filter
(SF)
EAP
Authentication
Protocol Modules
(EAPM)
EAP
Authentication
Protocol Modules
(EAPM)
Agent
Gatekeeper
GK

FIG. 5

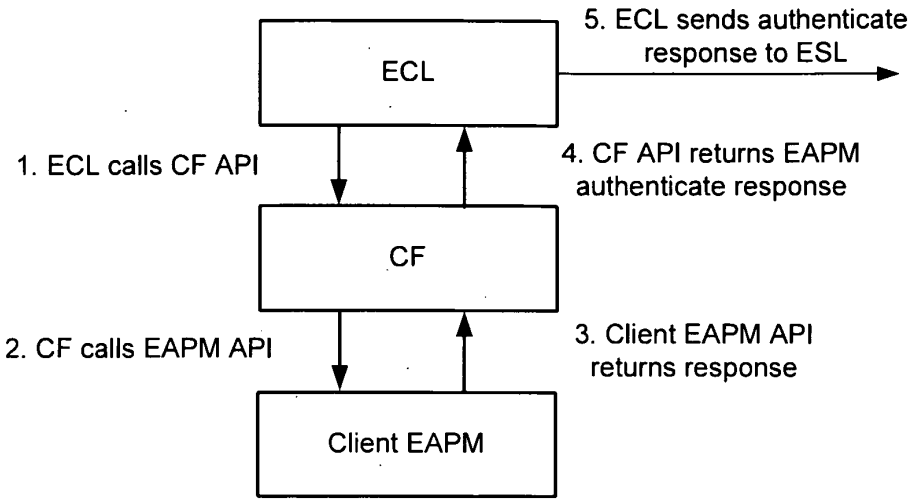
ECL
5. ECL sends authenticate response to ESL
1. ECL calls CF API
4. CF API returns EAPM authenticate response
CF
2. CF calls EAPM API
3. Client EAPM API returns response
Client EAPM

FIG. 6A

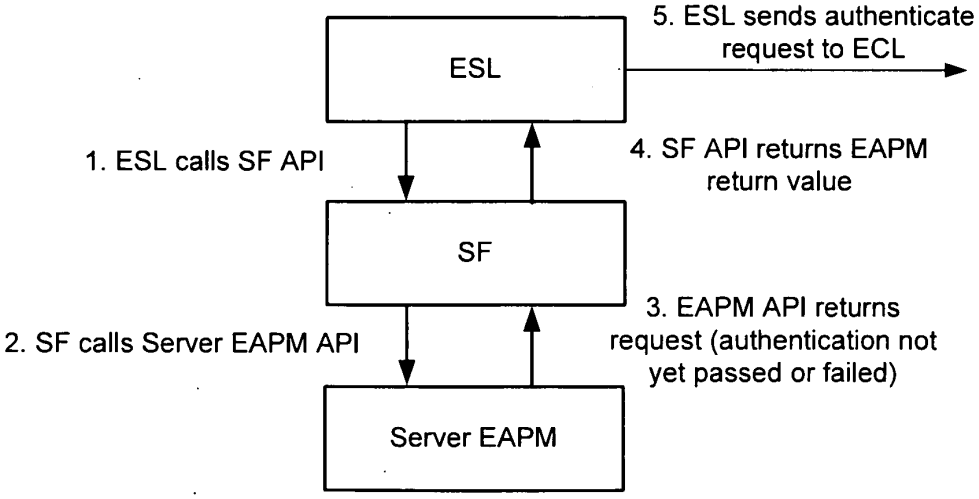
ESL
5. ESL sends authenticate request to ECL
1. ESL calls SF API
4. SF API returns EAPM return value
SF
2. SF calls Server EAPM API
3. EAPM API returns request (authentication not yet passed or failed)
Server EAPM

FIG. 6B

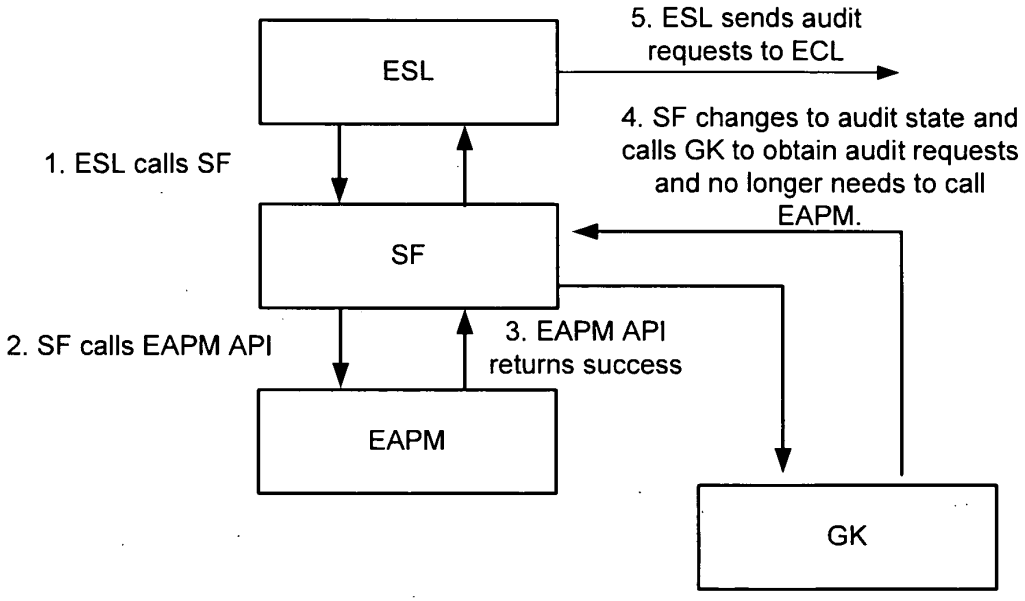
ESL
5. ESL sends audit requests to ECL
1. ESL calls SF
4. SF changes to audit state and calls GK to obtain audit requests and no longer needs to call EAPM.
SF
2. SF calls EAPM API
3. EAPM API returns success
EAPM
GK

FIG. 7

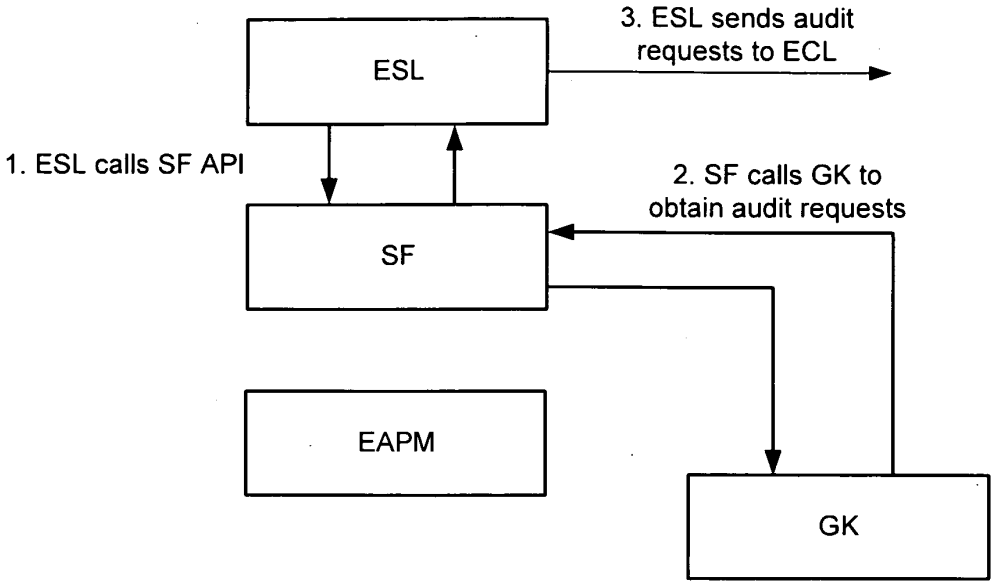
ESL
3. ESL sends audit requests to ECL
1. ESL calls SF API
2. SF calls GK to obtain audit requests
SF
EAPM
GK

FIG. 8A

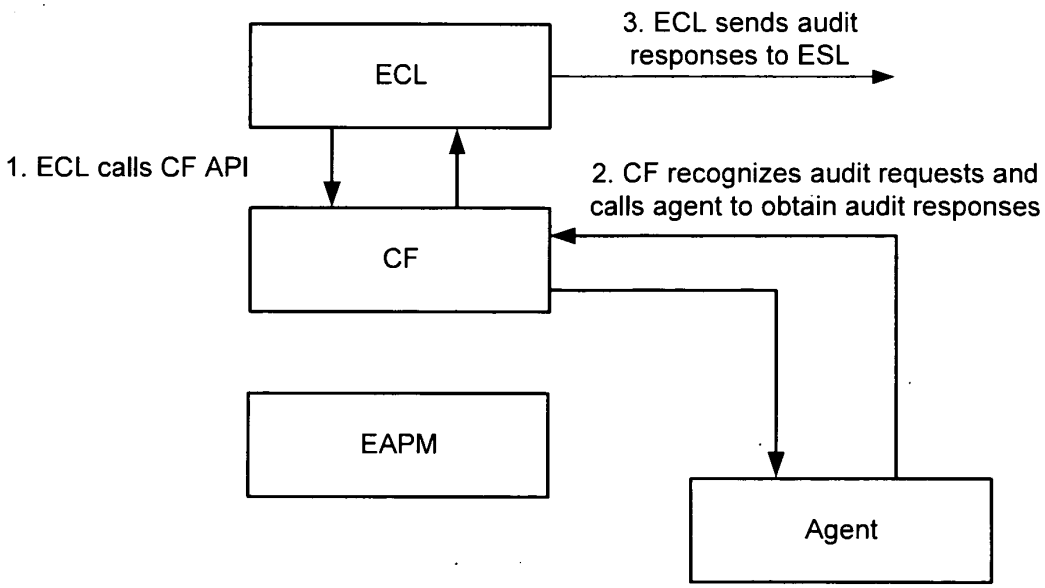
ECL
3. ECL sends audit responses to ESL
1. ECL calls CF API
2. CF recognizes audit requests and calls agent to obtain audit responses
CF
EAPM
Agent

FIG. 8B

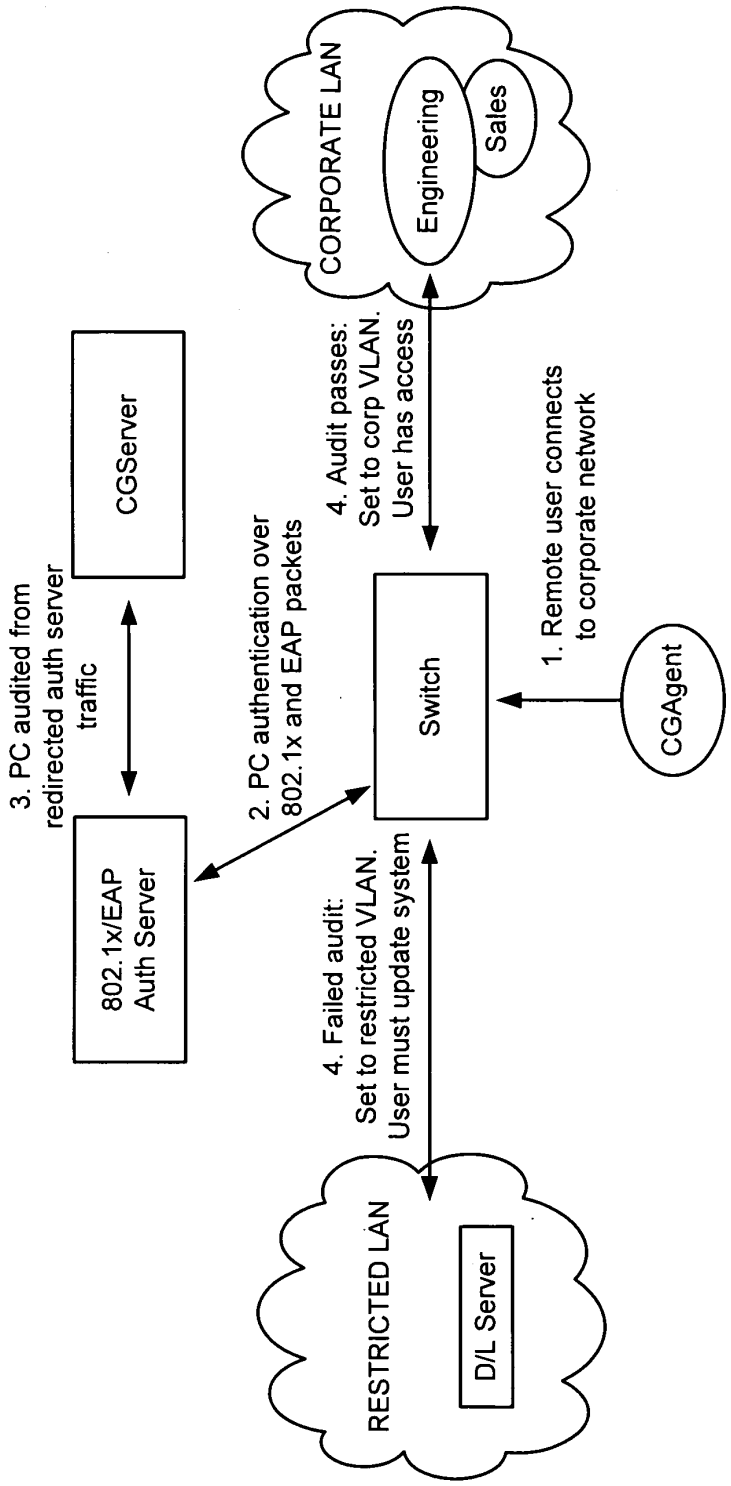
CORPORATE LAN
Engineering
Sales
CGServer
4. Audit passes:
Set to corp VLAN.
User has access
3. PC audited from
redirected auth server
traffic
2. PC authentication over
802.1x and EAP packets
Switch
1. Remote user connects
to corporate network
CGAgent
802.1x/EAP
Auth Server
4. Failed audit:
Set to restricted VLAN.
User must update system
RESTRICTED LAN
D/L Server

FIG. 9

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PTO/SB/17i (11-04)
Approved for use through 07/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PROCESSING FEE
Under 37 CFR 1.17(i)
TRANSMITTAL
(Fees are subject to annual revision)

Send completed form to: Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2435
Examiner Name	Hosuk Song
Attorney Docket Number	PA2836US

Enclosed is a paper filed under 37 CFR 1.48(a) **that requires a processing fee (37 CFR 1.17(i)).**
Payment of $ 130.00 **is enclosed.**
This form should be included with the above-mentioned paper and faxed or mailed to the Office using the appropriate Mail Stop, if applicable. *For transmittal of petition fees under 37 CFR 1.17(f), (g) or (h), see form PTO/SB/17p.*

Payment of Fees (small entity amounts are NOT available for the petition fees)

☑ The Commissioner is hereby authorized to charge the following fees to Deposit Account No. 06-0600:
☐ processing fee under 37 CFR 1.17(i) ☑ any deficiency of fees and credit of any overpayments
Enclose a duplicative copy of this form for fee processing.

☑ Check in the amount of $ 130.00 is enclosed.

☐ Payment by credit card (Form PTO-2038 or equivalent enclosed). Do not provide credit card information on this form.

Processing Fees under 37 CFR 1.17(i): Fee $130 Fee Code 1808 for all,
Except for § 1.221 papers (Fee Code 1803)

For papers filed under:
§ 1.28(c)(3) - for processing a non-itemized fee deficiency based on an error in small entity status.
§ 1.41 - for supplying the name or names of the inventor or inventors after the filing date without an oath or declaration as prescribed by § 1.63, except in provisional applications.
§ 1.48 - for correcting inventorship, except in provisional applications.
§ 1.52(d) - for processing a nonprovisional application filed with a specification in a language other than English.
§ 1.53(b)(3) - to convert a provisional application filed under § 1.53(c) into a nonprovisional application under § 1.53(b).
§ 1.55 - for entry of late priority papers.
§ 1.99(e) - for processing a belated submission under § 1.99.
§ 1.103(b) - for requesting limited suspension of action, continued prosecution application (§ 1.53(d)).
§ 1.103(c) - for requesting limited suspension of action, request for continued examination (§ 1.114).
§ 1.103(d) - for requesting deferred examination of an application.
§ 1.217 - for processing a redacted copy of a paper submitted in the file of an application in which a redacted copy was submitted for the patent application publication.
§ 1.221 - for requesting voluntary publication or republication of an application. **Fee Code 1803**
§ 1.291(c)(5) - for processing a second or subsequent protest by the same real party in interest.
§ 1.497(d) - for filing an oath or declaration pursuant to 35 U.S.C. 371(c)(4) naming an inventive entity different from the inventive entity set forth in the international stage.
§ 3.81 - for a patent to issue to assignee, assignment submitted after payment of the issue fee.

Signature	October 23, 2008 Date
Tam Thanh Pham Typed or printed name	50,565 Registration No., if applicable

This collection of information is required by 37 CFR 1.17. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 5 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Stacey C. Lum et al.

SERIAL NO.: 10/949,179

FILING DATE: September 24, 2004

TITLE: Systems and Methods of Controlling Network Access

EXAMINER: Hosuk Song

ATTY.DKT.NO.: PA2836US

COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

U.S. NON-PROVISIONAL PATENT APPLICATION
ADDITIONAL INVENTORS SHEET

Given Name(First and Middle)	Family Name	Residence (City/State)
Yuhshiow Alice	Lee	Saratoga, CA

Respectfully submitted,

Stacey C. Lum et al.

Dated: October 23, 2008 By:

Tam Thanh Pham, Reg. No. 50,565
CARR & FERRELL *LLP*
2200 Geng Road
Palo Alto, CA 94303
TEL: (650) 812-3400
FAX: (650) 812-3444

OCT 27 2008
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS:	Stacey C. Lum, et al.
APPLICATION NO.:	10/949,179
TITLE:	Systems and Methods of Controlling Network Access
FILING DATE:	September 24, 2004
EXAMINER:	Hosuk Song
ART UNIT:	2435
CONF. NO:	4744
ATTY. DKT. NO.:	PA2836US

REQUEST FOR CORRECTION OF INVENTORSHIP IN A NONPROVISIONAL PATENT APPLICATION UNDER 37 C.F.R. § 1.48(a)

Enclosed is a request to correct inventorship in the above-referenced nonprovisional patent application, submitted pursuant to 37 C.F.R. § 1.48(a). Also submitted herewith are a statement from the person being added as an inventor that the inventorship error occurred without deceptive intent on her part, a supplemental declaration signed by each inventor as required by 37 C.F.R. § 1.63, the written consent of the assignee, the processing fee as set forth in 37 C.F.R. § 1.17(i), a copy of the filing receipt, a list of additional inventors, and the Statement Under 3.73(b).

10/27/2008 RFEKADU1 00000049 10949179
01 FC:1464 130.00 OP

CORRECTION OF INVENTORSHIP

Please add the name of the following inventor to the present application:

Yuhshiow Alice Lee

The inventorship for the present application following this correction should read:

Stacey C. Lum
Yuhshiow Alice Lee

CONCLUSION

Pursuant to 37 C.F.R. § 1.48(a)(4), submitted herewith are funds in the amount of $130.00 to satisfy the processing fee as set forth by 37 C.F.R. § 1.17(i). While no other fee is believed to be due with this request, the Commissioner is authorized to charge for any additional fees which may be due or to credit for any overpayment of fees to Deposit Account 06-0600.

The inventorship error occurred without deceptive intent. The amendment of this application to reflect the addition of Yuhshiow Alice Lee as an inventor is respectfully requested. The Examiner's prompt attention to this matter is greatly appreciated. Should the Examiner have any questions, the Examiner is invited to contact the Applicant's undersigned representative by telephone.

Respectfully submitted,

October 23, 2008

By: _____

Tam Thanh Pham, Reg. No. 50,565
CARR & FERRELL *LLP*
2200 Geng Road
Palo Alto, CA 94303
T: 650.812.3400
F: 650.812.3444

CISCO SYSTEMS, INC.
FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 270 of 316

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OCT 2 7 2008
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS:	Stacey C. Lum, et al.
APPLICATION NO.:	10/949,179
TITLE:	Systems and Methods of Controlling Network Access
FILING DATE:	September 24, 2004
EXAMINER:	Hosuk Song
ART UNIT:	2135
CONF. NO:	4744
ATTY. DKT. NO.:	PA2836US

COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

STATEMENT OF FACTS IN SUPPORT OF
REQUEST FOR CORRECTION OF INVENTORSHIP
UNDER 37 C.F.R. § 1.48(a)

On September 24, 2004, the present application for Systems and Methods of Controlling Network Access was filed. A declaration was executed by Stacey C. Lum and filed therewith, wherein he asserted to be the original, first and sole inventor of the subject matter claimed therein.

I have reviewed the claims in this application and have confirmed that I am an original, first and joint inventor for this application. I was erroneously omitted from the declaration submitted to the U.S. Patent Office; that omission occurred without deceptive intent on my part.

I hereby consent to the addition of my name to this application as an inventor.

All statements made herein are made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 10/21/08

Yuhshiow Alice Lee

Yuhshiow Alice Lee

PA2836US

ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, I, the undersigned, **Yuhshiow Alice Lee**, do hereby sell, assign, and transfer to **InfoExpress, Inc**, a **corporation** with offices at **170 S. Whisman Road, Suite B, Mountain View, CA 94041** ("Assignee"), and its successors, assigns, and legal representatives, the entire right, title and interest for the United States and all foreign countries, in and to any and all improvements which are disclosed in United States patent application number **10/949,179** filed on **September 24, 2004** and entitled

"Systems and Methods of Controlling Network Access"

and in and to said application and all utility, divisional, continuing, substitute, renewal, reissue, and all other patent applications which have been or shall be filed in the United States and all foreign countries on any of said improvements; and in and to all original and reissued patents which have been or shall be issued in the United States and all foreign countries on said improvements; and in and to all rights of priority resulting from the filing of said United States patent application; and

Agree that said Assignee may apply for and receive patents for said improvements in its own name; and that, when requested, without charge to, but at the expense of, said Assignee, its successors, assigns and legal representatives, to carry out in good faith the intent and purpose of this Assignment, the undersigned will execute all divisional, continuing, substitute, renewal, reissue, and all other patent applications on any and all said improvements; execute all rightful oaths, assignments, powers of attorney and other papers; communicate to said Assignee, its successors, assigns, and representatives, all facts known to the undersigned relating to said improvements and the history thereof; and generally do everything possible which said Assignee, its successors,

assigns or representatives shall consider desirable for aiding in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns and legal representatives; and

Covenant with said Assignee, its successors, assigns and legal representatives that no assignment, grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

Date: 10/21/08

Name: Yuhshiow Alice Lee

Yuhshiow Alice Lee

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS:	Stacey C. Lum, et al.
APPLICATION NO.:	10/949,179
TITLE:	Systems and Methods of Controlling Network Access
FILING DATE:	September 24, 2004
EXAMINER:	Hosuk Song
ART UNIT:	2135
CONF. NO:	4744
ATTY. DKT. NO.:	PA2836US

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

WRITTEN CONSENT OF ASSIGNEE CONCERNING REQUEST FOR CORRECTION OF INVENTORSHIP UNDER 37 C.F.R. § 1.48(a)

I, the undersigned, **Stacey C. Lum**, am authorized to act and sign on behalf of **InfoExpress, Inc.**, the assignee of the entire right, title and interest in the above-referenced United States patent application.

As the assignee of the entire right, title and interest in this application, InfoExpress, Inc., pursuant to 37 C.F.R. § 1.48(a)(4), hereby consents to the addition of Yuhshiow Alice Lee as an inventor for this application.

Dated: 10/21/08

By: _____
Stacey C. Lum
Chief Executive Officer
InfoExpress, Inc.

OCT 27 2008
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY.DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/949,179	09/24/2004	2661	874	PA2836US	5	60	6

CONFIRMATION NO. 4744

22830
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

FILING RECEIPT

OC000000014327239

Date Mailed: 11/09/2004

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Stacey C. Lum, Los Altos, CA;

Power of Attorney: The patent practitioners associated with Customer Number **22830**.

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/505,582 09/24/2003
and claims benefit of 60/513,080 10/21/2003

Foreign Applications

If Required, Foreign Filing License Granted: 11/09/2004

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US10/949,179

Projected Publication Date: 03/24/2005

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Systems and methods of controlling network access

Preliminary Class

370

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Office of Export Administration, Department of Commerce (15 CFR 370.10 (j)); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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OCT 2 7 2008
PATENT & TRADEMARK OFFICE

ATTORNEY'S DOCKET NO.: PA2836US

SUPPLEMENTAL DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled

"Systems and Methods of Controlling Network Access"

which was filed in the United States Patent and Trademark Office on September 24, 2004 and assigned serial number 10/949,179.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) or (f) or §365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s):

Number	Country	Foreign Filing Date	Priority Claimed?		Certified Copy Attached?	
(Number)	(Country)	(MM/DD/YYYY)	Yes	No	Yes	No
(Number)	(Country)	(MM/DD/YYYY)	Yes	No	Yes	No

ATTORNEY'S DOCKET NO.: PA2836US

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Prior Provisional Applications:

60/505,582 (Application Number)	September 24, 2003 (Filing Date)
60/513,080 (Application Number)	October 21, 2003 (Filing Date)

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Prior U.S. or PCT Applications Designating the U.S.:

(Application Number)	(Filing Date)	(Status -- patented, pending, abandoned)
(Application Number)	(Filing Date)	(Status -- patented, pending, abandoned)

POWER OF ATTORNEY: I hereby appoint the attorney(s) and/or agent(s) associated with the customer number **22830** to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

SEND ALL CORRESPONDENCE TO:

Customer Number 22830
CARR & FERRELL *LLP*
2200 Geng Road
Palo Alto, CA 94303
TEL: (650) 812-3400
FAX: (650) 812-3444

ATTORNEY'S DOCKET NO.: PA2836US

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor: Stacey C. Lum **Citizenship:** U.S.A.
Print First Name, Middle Name or Initial (if applicable), Last Name

Inventor's signature: _____ Dated: 10/21/08
(Permanent ink only) *(Date of Signature)*

Residence Address: Los Altos, California
(if the inventor lives at a location different than his/her mailing address)

Mailing Address: 170 S. Whisman Road, Suite B, Mountain View, California 94041
(Where the inventor customarily receives mail: Number, Street, City, State, Zip Code)

Full name of second inventor: Yuhshiow Alice Lee **Citizenship:** U.S.A.
Print First Name, Middle Name or Initial (if applicable), Last Name

Inventor's signature: _____ Dated: 10/21/08
(Permanent ink only) *(Date of Signature)*

Residence Address: Saratoga, California
(if the inventor lives at a location different than his/her mailing address)

Mailing Address: 170 S. Whisman Road, Suite B, Mountain View, California 94041
(Where the inventor customarily receives mail: Number, Street, City, State, Zip Code)

37 CFR §1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) Prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patent-ably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability. A *prima facie* case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

(e) In any continuation-in-part application, the duty under this section includes the duty to disclose to the Office all information known to the person to be material to patentability, as defined in paragraph (b) of this section, which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

OIPE IAP87
OCT 2 7 2008
PATENT & TRADEMARK OFFICE

PTO/SB/96 (09-08)
Approved for use through 10/31/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: InfoExpress, Inc.

Application No./Patent No.: 10/949,179 Filed/Issue Date: September 24, 2004

Entitled: Systems and Methods of Controlling Network Access

InfoExpress, Inc., a corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☑ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest (The extent (by percentage) of its ownership interest is _____ %)

in the patent application/patent identified above by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Stacey C. Lum To: InfoExpress, Inc.
   The document was recorded in the United States Patent and Trademark Office at
   Reel 015837, Frame 0563, or for which a copy thereof is attached.
2. From: Yuhshiow Alice Lee To: InfoExpress, Inc.
   The document was recorded in the United States Patent and Trademark Office at
   Reel _____, Frame _____, or for which a copy thereof is attached.
3. From: _____ To: _____
   The document was recorded in the United States Patent and Trademark Office at
   Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Signature	10/21/08 Date
Stacey C. Lum Printed or Typed Name	(650) 623-0260 x255 Telephone Number
CEO Title	

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

OIPE IAP87
OCT 2 7 2008
PATENT & TRADEMARK OFFICE

IFW

PTO/SB/21 (09-04)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission: 16

Application Number	10/949,179
Filing Date	September 24, 2004
First Named Inventor	Stacey C. Lum
Art Unit	2435
Examiner Name	Hosuk Song
Attorney Docket Number	PA2836US

ENCLOSURES *(Check all that apply)*

- [✓] Fee Transmittal Form
  - [✓] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [✓] Other Enclosure(s) (please Identify below):

1) Confirmation Postcard;
2) Request for Correction of Inventorship;
3) List of Additional Inventors;
4) Check in the amount of $130;
5) Copy of the Filing Receipt;
6) Written Constent of Assignee;
7) Statement of Facts;
8) Supplemental Declaration;
9) Statement Under 3.73(b);
10) Copy of Assignment.

Remarks

Total page number does not include postcard or check.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Carr & Ferrell LLP Customer No. 22830		
Signature			
Printed name	Tam Thanh Pham		
Date	October 23, 2008	Reg. No.	50,565

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Tam Thanh Pham, Reg. No. 50,565	Date	October 23, 2008

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

22830 7590 10/31/2008

CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

EXAMINER	
SONG, HOSUK	
ART UNIT	PAPER NUMBER
2435	

DATE MAILED: 10/31/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

TITLE OF INVENTION: SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	02/02/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

CISCO SYSTEMS, INC.
FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 283 of 316

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22830 7590 10/31/2008

CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

TITLE OF INVENTION: SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	02/02/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
SONG, HOSUK	2435	726-001000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____

2_____

3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

22830 7590 10/31/2008

CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

EXAMINER
SONG, HOSUK

ART UNIT	PAPER NUMBER
2435	

DATE MAILED: 10/31/2008

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 827 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 827 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Notice of Allowability	Application No.	Applicant(s)	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2435	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *RCE filed on 10/9/08*.

2. ☒ The allowed claim(s) is/are *3,6-12,16-30,32-40,42-51,53-56,58 and 60-94*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/HOSUK SONG/
Primary Examiner, Art Unit 2435

CISCO SYSTEMS, INC.
FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 286 of 316

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/949,179	LUM, STACEY C.	
	Examiner	Art Unit	
	HOSUK SONG	2435	

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S853	388	726/1.ccls.	USPAT	OR	ON	2008/10/23 16:57
S854	661	726/2.ccls.	USPAT	OR	ON	2008/10/23 16:57
S855	607	726/3.ccls.	USPAT	OR	ON	2008/10/23 16:57
S856	629	726/4.ccls.	USPAT	OR	ON	2008/10/23 16:58
S857	266	726/12.ccls.	USPAT	OR	ON	2008/10/23 16:58
S858	207	726/15.ccls.	USPAT	OR	ON	2008/10/23 16:58
S859	415	726/23.ccls.	USPAT	OR	ON	2008/10/23 16:58
S860	358	726/24.ccls.	USPAT	OR	ON	2008/10/23 16:58
S861	454	713/150.ccls.	USPAT	OR	ON	2008/10/23 16:58
S862	569	713/153.ccls.	USPAT	OR	ON	2008/10/23 16:58
S863	1401	713/168.ccls.	USPAT	OR	ON	2008/10/23 16:58
S864	2126	709/225.ccls.	USPAT	OR	ON	2008/10/23 16:59
S865	1615	709/228.ccls.	USPAT	OR	ON	2008/10/23 16:59
S866	2669	709/229.ccls.	USPAT	OR	ON	2008/10/23 16:59
S867	40	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and gatekeeper and policy	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:01

S868	842	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:01
S869	475	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and policy	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:01
S870	5	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S853	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S871	3	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S854	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S872	4	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S855	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S873	6	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S856	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03

S874	9	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S857	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S875	8	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S858	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S876	7	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S859	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S877	3	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S860	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S878	3	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S861	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S879	8	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S862	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03

S880	4	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S863	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S881	12	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S864	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:03
S882	10	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S865	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:04
S883	4	access$4 adj3 (device or computer or network or server or apparatus) and (subnetwork or sub-network) and VPN and S866	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/10/23 17:04
S884	2	(policy and access $4 and protect$4 and network and gatekeeper and (device or apparatus or computer) and subset and data and restrict$4 and control and requirement).CLM.	US-PGPUB; USPAT	OR	ON	2008/10/23 17:06

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1 Development of security policies for private networks
Saad Haj Bakry
May 2003 International Journal of Network Management, Volume 13 Issue 3
Publisher: John Wiley & Sons, Inc.
Full text available: Pdf (99.06 KB) Additional Information: full citation, abstract, references, cited by, index terms, review

Bibliometrics: Downloads (6 Weeks): 19, Downloads (12 Months): 273, Citation Count: 4

With the current worldwide emphasis on e-business, the development of sound network security policies for private networks connected to the Internet is becoming of increasing importance. This paper identifies a general network security profile upon which ...

2 Experiences in VoIP telephone network security policy at the University of Applied Science (FHTW) Berlin
Vesselin Iossifov, Theodor Totev, Arndt Tochatschek
June 2007 CompSysTech '07: Proceedings of the 2007 international conference on Computer systems and technologies
Publisher: ACM
Full text available: Pdf (362.49 KB) Additional Information: full citation, abstract, references

Bibliometrics: Downloads (6 Weeks): 19, Downloads (12 Months): 248, Citation Count: 0

The lecture will present a test of the VoIP (Voice over Internet Protocol) network at the University of Applied Sciences (FHTW) Berlin based on Cisco VoIP phones model 7970G as an example in test of security policy of VoIP networks to find out ...

Keywords: IT security, voice over IP

3 An enterprise policy-based security protocol for protecting relational database network objects
Wassim Itani, Ayman Kayssi, Ali Chehab
July 2006 IWCMC '06: Proceedings of the 2006 international conference on Wireless communications and mobile computing
Publisher: ACM
Full text available: Pdf (1.42 MB) Additional Information: full citation, abstract, references, index terms

CISCO SYSTEMS, INC.
FORTINET, INC.
IPR2024-00675
Ex. 1502, p. 292 of 316

Bibliometrics: Downloads (6 Weeks): 25, Downloads (12 Months): 207, Citation Count: 0

In this paper we present ESCORT, an Enterprise, policy-baSed seCurity prOtocol for protecting relational daTabase network objects. ESCORT is an efficient end-to-end security architecture tha ensures the confidentiality and integrity of database objects ...

Keywords: customizable security, policy-driven security, relational databases, security

4 A security policy system for mobile autonomic networks
Mohamad Aljnidi, Jean Leneutre
October 2007 Autonomics '07: Proceedings of the 1st international conference on Autonomic computing and communication systems
Publisher: ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering)
Full text available: Pdf (226.41 KB) Additional Information: full citation, abstract, references

Bibliometrics: Downloads (6 Weeks): 30, Downloads (12 Months): 100, Citation Count: 0

An autonomic security system is indispensable for the operation of an autonomic network. Policies are basic stones in building autonomic systems. In this paper, we introduce our model o mobile autonomic networks. Accordingly, we propose a security framework ...

Keywords: ad-hoc networks, autonomic computing, autonomic networks, security models, security policy management

5 Specifications of a high-level conflict-free firewall policy language for multi-domain network
Bin Zhang, Ehab Al-Shaer, Radha Jagadeesan, James Riely, Corin Pitcher
June 2007 SACMAT '07: Proceedings of the 12th ACM symposium on Access control models and technologies
Publisher: ACM
Full text available: Pdf (370.35 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 24, Downloads (12 Months): 213, Citation Count: 0

Multiple firewalls typically cooperate to provide security properties for a network, despite the fac that these firewalls are often spatially distributed and configured in isolation. Without a global view of the network configuration, such a system ...

Keywords: conflicts free, firewall, policy language

6 Trust management for IPsec
May 2002 ACM Transactions on Information and System Security (TISSEC), Volume 5 Issue 2
Publisher: ACM
Full text available: Pdf (321.98 KB) Additional Information: full citation, abstract, references, cited by, index terms, review

Bibliometrics: Downloads (6 Weeks): 21, Downloads (12 Months): 219, Citation Count: 3

IPsec is the standard suite of protocols for network-layer confidentiality and authentication of Internet traffic. The IPsec protocols, however, do not address the policies for how protected traffic should be handled at security end points. This article ...

Keywords: Credentials, IPsec, KeyNote, network security, policy, trust management

7 Teaching security *best practices* by architecting and administering an IT security lab

CISCO SYSTEMS, INC. IPR2024-00675 Ex. 1502, p. 293 of 316
FORTINET, INC.

Brady R. Stevenson, Gordon W. Romney
October 2004 CITC5 '04: Proceedings of the 5th conference on Information technology education
Publisher: ACM
Full text available: Pdf (189.97 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 16, Downloads (12 Months): 342, Citation Count: 1

Information Assurance(IA) can be learned by actively being involved in the "doing" process. Students within a university setting have architected, installed and administered a security lab. The value and need for security best practices ...

Keywords: IT infrastructure, business enterprise, educational enterprise, information assurance network engineer, security architect, security best practices, security laboratory, security systen engineer

8 *Firmato*: A novel firewall management toolkit
Yair Bartal, Alain Mayer, Kobbi Nissim, Avishai Wool
November 2004 ACM Transactions on Computer Systems (TOCS), Volume 22 Issue 4
Publisher: ACM
Full text available: Pdf (917.80 KB) Additional Information: full citation, abstract, references, cited by, index terms, review

Bibliometrics: Downloads (6 Weeks): 29, Downloads (12 Months): 244, Citation Count: 2

In recent years packet-filtering firewalls have seen some impressive technological advances (e.g., stateful inspection, transparency, performance, etc.) and wide-spread deployment. In contrast, firewall and security management technology ...

Keywords: Security policy, firewall, management, model definition language, visualization

9 A comprehensive objective network security metric framework for proactive security configuration
Ehab Al-Shaer, Latifur Khan, Mohammad Salim Ahmed
May 2008 CSIIRW '08: Proceedings of the 4th annual workshop on Cyber security and informaito intelligence research: developing strategies to meet the cyber security and information intelligence challenges ahead
Publisher: ACM
Full text available: Pdf (115.80 KB) Additional Information: full citation, appendices and supplements, abstract, references

Bibliometrics: Downloads (6 Weeks): 15, Downloads (12 Months): 15, Citation Count: 0

In order to create secure and dependable systems and information intelligence, it is a major challenge to determine the security level of the network. This security level depends on a numb of dynamically changing factors including emerging of new vulnerabilities ...

10 A basic security plan for a generic organization
Bhagyavati, Glenn Hicks
October 2003 Journal of Computing Sciences in Colleges, Volume 19 Issue 1
Publisher: Consortium for Computing Sciences in Colleges
Full text available: Pdf (40.79 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 43, Downloads (12 Months): 271, Citation Count: 0

Different organizations have plans in place to implement security in their computers and networks. In this paper, we examine the pros and cons of implementing a generic security plan

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on wired networks. The work presented here stems from an Independent ...

11 Network security development process: a framework for teaching network security courses
T. Andrew Yang, Tuan Anh Nguyen
April 2006 Journal of Computing Sciences in Colleges, Volume 21 Issue 4
Publisher: Consortium for Computing Sciences in Colleges
Full text available: Pdf (353.52 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 9, Downloads (12 Months): 150, Citation Count: 0

Teaching *Network Security* course is a challenging task. One of the challenges is that networks have become more complicated and prone to attacks. In response to the challenge, the set of networking and security protocols and mechanisms continue ...

12 SVGrid: a secure virtual environment for untrusted grid applications
Xin Zhao, Kevin Borders, Atul Prakash
November 2005 MGC '05: Proceedings of the 3rd international workshop on Middleware for grid computing
Publisher: ACM
Full text available: Pdf (409.68 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 74, Citation Count: 0

Most grid security researches focus on user authentication and secure communication, the protection of grid computers is left to the underlying operating system. Unfortunately, most OS level protection mechanisms can be turned off after an attacker manages ...

Keywords: grid computing, secure grid system, virtual machine

13 Using a simulation environment for teaching and researching networking topics
Victor Clincy
March 2005 ACM-SE 43: Proceedings of the 43rd annual Southeast regional conference - Volume 1, Volume 1
Publisher: ACM
Full text available: Pdf (260.81 KB) Additional Information: full citation, abstract

Bibliometrics: Downloads (6 Weeks): 2, Downloads (12 Months): 40, Citation Count: 0

ITGuru is a powerful simulation environment developed by OpNET Corporation. ITGuru is unique because of its ability to model the entire network, including its routers, switches, protocols, servers, and the individual *applications* they support. ...

14 Zodiac: efficient impact analysis for storage area networks
Aameek Singh, Madhukar Korupolu, Kaladhar Voruganti
December 2005 FAST'05: Proceedings of the 4th conference on USENIX Conference on File and Storage Technologies - Volume 4, Volume 4
Publisher: USENIX Association
Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): n/a, Downloads (12 Months): n/a, Citation Count: 0

Currently, the fields of impact analysis and policy based management are two important storage

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FORTINET, INC.

management topics that are not being treated in an integrated manner. Policy-based storage management is being adopted by most storage vendors because it lets ...

15 PoliPer: policies for mobile and pervasive environments
Luis Veiga, Paulo Ferreira
October 2004 ARM '04: Proceedings of the 3rd workshop on Adaptive and reflective middleware
Publisher: ACM
Full text available: Pdf (269.24 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 3, Downloads (12 Months): 37, Citation Count: 0

The need for sharing is well known in a large number of distributed applications. These applications are difficult to develop either for fully wired or mobile wireless networks. Such difficulty arises not only because of slow and unreliable connections ...

16 Building an application-aware IPsec policy system
Heng Yin, Haining Wang
December 2007 IEEE/ ACM Transactions on Networking (TON), Volume 15 Issue 6
Publisher: IEEE Press
Full text available: Pdf (1.60 MB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 24, Downloads (12 Months): 95, Citation Count: 0

As a security mechanism at the network-layer, the IP security protocol (IPsec) has been availab for years, but its usage is limited to Virtual Private Networks (VPNs). The end-to-end security services provided by IPsec have not been widely used. To ...

Keywords: communication system security, computer network security

17 Secure virtual enclaves: Supporting coalition use of distributed application technologies
May 2001 ACM Transactions on Information and System Security (TISSEC), Volume 4 Issue 2
Publisher: ACM
Full text available: Pdf (462.10 KB) Additional Information: full citation, abstract, references, cited by, index terms, review

Bibliometrics: Downloads (6 Weeks): 5, Downloads (12 Months): 80, Citation Count: 2

The Secure Virtual Enclaves (SVE) collaboration infrastructure allows multiple organizations to share their distributed application objects, while respecting organizational autonomy over local resources. The infrastructure is transparent to applications, ...

Keywords: Access control, coalition, collaborative system, group communication, middleware, security policy

18 Attestation-based policy enforcement for remote access
Reiner Sailer, Trent Jaeger, Xiaolan Zhang, Leendert van Doorn
October 2004 CCS '04: Proceedings of the 11th ACM conference on Computer and communications security
Publisher: ACM
Full text available: Pdf (261.52 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 38, Downloads (12 Months): 251, Citation Count: 13

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Intranet access has become an essential function for corporate users. At the same time, corporation's security administrators have little ability to control access to corporate data once i is released to remote clients. At present, no confidentiality ...

Keywords: remote access, security management, trusted computing

19 Requirements for scalable access control and security management architectures
Angelos D. Keromytis, Jonathan M. Smith
May 2007 ACM Transactions on Internet Technology (TOIT), Volume 7 Issue 2
Publisher: ACM
Full text available: Pdf (365.56 KB) Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 24, Downloads (12 Months): 383, Citation Count: 0

Maximizing local autonomy by delegating functionality to end nodes when possible (the end-to-end design principle) has led to a scalable Internet. Scalability and the capacity for distributed control have unfortunately not extended well to resource access-control ...

Keywords: Large-scale systems, access control, authorization, credentials, delegation, distributed systems, security policy, trust management

20 An isolated, multi-platform network sandbox for teaching IT security system engineers
Gordon W. Romney, Brady R. Stevenson
October 2004 CITC5 '04: Proceedings of the 5th conference on Information technology education
Publisher: ACM
Full text available: Pdf (399.70 KB) Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics: Downloads (6 Weeks): 18, Downloads (12 Months): 133, Citation Count: 4

The objective of this paper is to describe the successful deployment and operation of a student managed, isolated network "Sandbox" laboratory used for teaching Information Technology (IT) Security System Engineers. Laboratories for training Network ...

Keywords: collaborative student teaching, curricula, data privacy, information assurance, information technology, security best practices, security laboratory, security system engineer

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Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/949,179	LUM, STACEY C.
Examiner	**Art Unit**
HOSUK SONG	2435

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date								
Final	Original	10/23/08								
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Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination
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(Legal Instruments Examiner) (Date)		O.G. Print Claim(s): 1 — O.G. Print Fig.: 2

☐ **Claims renumbered in the same order as presented by applicant** ☐ CPA ☐ T.D. ☐ R.1.47

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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	10/949,179	LUM, STACEY C.
	Examiner	Art Unit
	HOSUK SONG	2435

SEARCHED			
Class	Subclass	Date	Examiner
726	1-4,12	10/23/2008	HS
726	15,23-24	10/23/2008	HS
713	150,153	10/23/2008	HS
713	168	10/23/2008	HS
709	225	10/23/2008	HS
709	228-229	10/23/2008	HS

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
726	**1-4,12,15**	10/23/2008	**HS**
726	23-24	10/23/2008	HS
713	150,153	10/23/2008	HS
USPGPUB see printout		10/23/2008	HS

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22830 7590 10/31/2008

CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

11/04/2008 RMEBRAH1 00000071 060600 10949179

01 FC:2501 755.00 DA
02 FC:1504 300.00 DA

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Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Tam Thanh Pham	(Depositor's name)
[signature]	(Signature)
November 3, 2008	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

TITLE OF INVENTION: SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	02/02/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
SONG, HOSUK	2435	726-001000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Carr & Ferrell LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: InfoExpress, Inc.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Mountain View, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)
- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 06-0600 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)
- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature [signature] Date November 3, 2008

Typed or printed name Tam Thanh Pham Registration No. 50,565

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.
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PAGE 2/2 * RCVD AT 11/3/2008 5:48:08 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-3/6 * DNIS:2732885 * CSID:6508123444 * DURATION (mm-ss):01-04

OIPE IAP83
NOV 0 3 2008
PATENT & TRADEMARK OFFICE

CARR & FERRELL LLP
ATTORNEYS AT LAW
2200 GENG ROAD • PALO ALTO, CALIFORNIA 94303
TELEPHONE (650) 812-3400 • FACSIMILE (650) 812-3444

FACSIMILE COVER SHEET

To:	Mail Stop ISSUE Fee Commissioner for Patents
Company:	United States Patent & Trademark Office
Fax Number:	(571) 273-2885
From:	Tam Thanh Pham
Phone Number:	(650) 812-3400
Fax Number:	(650) 812-3444
Our Ref:	PA2836US
Date:	November 3, 2008
Total pages:	2 (includes cover sheet)

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED, AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, OR THE EMPLOYEE OR AGENT RESPONSIBLE FOR DELIVERING THE MESSAGE TO THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE, AND RETURN THE ORIGINAL MESSAGE TO US AT THE ABOVE ADDRESS VIA THE U.S. POSTAL SERVICE. THANK YOU.

MESSAGE:

Please see attached.

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United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	09/24/2004	Stacey C. Lum	PA2836US	4744

22830 7590 03/10/2009
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

EXAMINER
SONG, HOSUK

ART UNIT	PAPER NUMBER
2435	

MAIL DATE	DELIVERY MODE
03/10/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10949179	9/24/2004	LUM ET AL.	PA2836US

EXAMINER
HOSUK SONG

ART UNIT	PAPER
2435	20090304

DATE MAILED:

CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

In view of the Petition filed 10/27/08, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed. The inventors of the present application now include:

Stacey C. Lumm and
Yuhshiow Alice Lee.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

/Hosuk Song/
Primary Examiner, Art Unit 2435

PTO-90C (Rev.04-03)

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/949,179	04/21/2009	7523484	PA2836US	4744

22830 7590 04/01/2009
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 876 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Stacey C. Lum, Los Altos, CA;
Yuhshiow Alice Lee, Saratoga, CA;

IR103 (Rev. 11/05)

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BIB DATA SHEET

CONFIRMATION NO. 4744

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/949,179	09/24/2004 **RULE**	370	2435	PA2836US

APPLICANTS
Stacey C. Lum, Los Altos, CA;
Yuhshiow Alice Lee, Saratoga, CA;

**** CONTINUING DATA ***************************
This appln claims benefit of 60/505,582 09/24/2003
and claims benefit of 60/513,080 10/21/2003

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
11/09/2004

Foreign Priority claimed	❑ Yes ☑ No	❑ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	❑ Yes ☑ No		CA	5	60	6
Verified and Acknowledged	/Hosuk Song/ Examiner's Signature	Initials				

ADDRESS
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303
UNITED STATES

TITLE
SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS

FILING FEE RECEIVED		
2039	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

BIB (Rev. 05/07).

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
10/949,179	09/24/2004	2435	2039	PA2836US	60	6

CONFIRMATION NO. 4744

CORRECTED FILING RECEIPT

22830
CARR & FERRELL LLP
2200 GENG ROAD
PALO ALTO, CA 94303

OC000000041884119

Date Mailed: 06/18/2010

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Stacey C. Lum, Los Altos, CA;
Yuhshiow Alice Lee, Saratoga, CA;

Power of Attorney: The patent practitioners associated with Customer Number 22830

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/505,582 09/24/2003
and claims benefit of 60/513,080 10/21/2003

Foreign Applications

If Required, Foreign Filing License Granted: 11/09/2004

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 10/949,179**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **

Title

SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS

Preliminary Class

726

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REVOCATION OF ATTORNEY AND POWER OF ATTORNEY

The undersigned, having authority to act on behalf of InfoExpress, Inc., assignee of all right, title, and interest in the attached schedule of patent applications (Schedule A), hereby revokes all powers of attorney previously given and hereby appoints the attorneys and agents associated with **Customer Number 28661** as its attorney to act on applicant's behalf before the United States Patent and Trademark Office for the attached schedule of patent applications (Schedule A) and to transact all business in the Patent and Trademark Office in connection herewith.

STATEMENT UNDER 37 CFR 3.73(b)

The undersigned certifies that it is the assignee of the entire right, title, and interest in the attached schedule of patent applications (Schedule A). The chain of title from the inventors to the assignee of record for each of the patent applications identified in the attached schedule of patent applications (Schedule A) is attached hereto as Schedule B. The undersigned is empowered and authorized to act on behalf of the assignee.

Kindly address all communications regarding this application to:

Customer No. 28661
Lewis and Roca LLP

Respectfully submitted,
InfoExpress, Inc.

Date: 6/21/11

Stacey Lum
President & CEO

Schedule A

Application No.	Filing Date	Patent No.	Issue Date
10/949,179	September 24, 2004	7,523,484	April 21, 2009
11/227,679	September 14, 2005	7,590,733	September 15, 2009
12/273,037	November 18, 2008	n/a	n/a
12/550,321	August 28, 2009	7,890,658	February 15, 2011
13/157,308	June 10, 2011	n/a	n/a
13/157,309	June 10, 2011	n/a	n/a
13/157,310	June 10, 2011	n/a	n/a

Schedule B

CHAIN OF TITLE INFORMATION

STATEMENT UNDER 37 CFR 3.73(b)

Application No. 10/949,179 Filed: September 24, 2004

1. From: the Inventor To: InfoExpress, Inc.

   Reel 015837 Frame 0563

2. From: the Inventor To: InfoExpress, Inc.

   Reel 021750 Frame 0364

Electronic Acknowledgement Receipt

EFS ID:	10376985
Application Number:	10949179
International Application Number:	
Confirmation Number:	4744
Title of Invention:	SYSTEMS AND METHODS OF CONTROLLING NETWORK ACCESS
First Named Inventor/Applicant Name:	Stacey C. Lum
Customer Number:	22830
Filer:	TamThanh Thi Pham/Stephanie Davis
Filer Authorized By:	TamThanh Thi Pham
Attorney Docket Number:	PA2836US
Receipt Date:	24-JUN-2011
Filing Date:	24-SEP-2004
Time Stamp:	13:19:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	10949179.pdf	122271 436158cf8d53bea27efcff7f67b5b6069c63462c	no	3

Warnings:

Information:

Total Files Size (in bytes):	122271

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/949,179	09/24/2004	Stacey C. Lum	PA2836US

CONFIRMATION NO. 4744

28661
LEWIS AND ROCA LLP
1663 Hwy 395, Suite 201
Minden, NV 89423

POA ACCEPTANCE LETTER

OC000000048510892

Date Mailed: 06/30/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/24/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/gbien-aime/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/949,179	09/24/2004	Stacey C. Lum	PA2836US

CONFIRMATION NO. 4744

POWER OF ATTORNEY NOTICE

22830
CARR & FERRELL LLP
120 CONSTITUTION DRIVE
MENLO PARK, CA 94025

OC000000048508796

Date Mailed: 06/30/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/24/2011.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/gbien-aime/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101