UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/027,436	09/21/2020	Steven Rogers	007742.00188\US	7579

22907 7590 12/20/2022

BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

EXAMINER
HUANG, CHENG-FENG

ART UNIT	PAPER NUMBER
2497	

NOTIFICATION DATE	DELIVERY MODE
12/20/2022	ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

GPD@bannerwitcoff.com
eofficeaction@bannerwitcoff.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of	:	
Centripetal Networks, Inc.	:	
Application No. 17/027,436	:	DECISION ON PETITION
Filed: 21 Sep 2020	:	
For: Methods and Systems for Protecting a Secured Network	:	
:		

This is a notice regarding the request for acceptance of a fee deficiency submission under 37 CFR 1.28(c) filed July 18, 2022.

On September 1, 1998, the Court of Appeals for the Federal Circuit held that 37 CFR 1.28(c) is the sole provision governing the time for correction of the erroneous payment of the issue fee as a small entity. **See DH Technology v. Synergystex International, Inc. 154 F.3d 1333, 47 USPQ2d 1865 (Fed. Cir. Sept. 1, 1998).**

The Office no longer investigates or rejects original or reissue applications under 37 CFR 1.56. **1098 Off. Gaz. Pat. Office 502 (January 3, 1989)**. Therefore, nothing in this Notice is intended to imply that an investigation was done.

The fee deficiency submission under 37 CFR 1.28(c) is hereby **ACCEPTED**.

Applicant regained entitlement to small entity status as of January 1, 2022 and accordingly, all future fees paid in this application must be paid at the small entity rate.

Inquiries related to this communication should be directed to the undersigned at (571) 272-2991.

/TERRI S JOHNSON/
Paralegal Specialist, OPET

United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :Suad Mohammed

Sale Accounting Date:12/14/2022

Sale Item Reference Number	Effective Date
17027436	07/15/2022

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I2022BD859071696	1461	1.28(C) SUBMISSIONS - APPLIC FILE FEE	$5,115.00	Deposit Account

Docket No.: 007742.00188US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No. 11,012,474

Inventors: Steven Rogers et al.

Application No.: 17/027,436 Confirmation No.:7579

Filed: September 21, 2020 Art Unit: 2497

For: Methods and Systems for Protecting a Secured Network Examiner: C. Huang

CORRECTIVE NOTICE REGARDING TEMPORARY LOSS OF ENTITLEMENT TO SMALL ENTITY STATUS AND PAYMENT OF DEFICIENCY OF FEES OWED

Commissioner for Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Dear Commissioner:

This filing corrects an inadvertent error in the Notice of Temporary Loss of Entitlement To Small Entity Status And Payment of Deficiency of Fees Owed filed on July 18, 2022 ("Original Notice"). The Original Notice set forth in a table a correct itemization of the deficiency of fees owed for the above-identified application/patent, and a correct total of $5115. The calculation line below the table, however, set forth incorrect numbers, indicating (incorrectly) a total deficiency owed of $2915. Accordingly, Applicant sets forth below a corrective notice. The calculation corrections relative to the Original Notice are marked with strike-through and underlining for convenience.

In accordance with 37 C.F.R. § 1.28(c), Applicant recently realized that it was not entitled to small entity status at the time it made certain payments to the Office as noted in the table below, and Applicant submits this payment of deficiency of fees owed. The loss of

entitlement to small entity status occurred prior to the earliest of the below-noted payments. Applicant's failure to previously notify the Office of the loss of entitlement to small entity status as required by 37 C.F.R. § 1.27(g)(2) occurred in good faith and without any deceptive intent.

Applicant regained entitlement to small entity status as of January 1, 2022, and Applicant claims small entity status as of that date and continuing through the present date.

As required by 37 C.F.R. § 1.28(c)(1) and (2), Applicant itemizes the deficiency of fees owed for the above-identified application as follows:

Type of Fee	**Date Paid**	**Fee Paid**	**Current Fee**	**Deficiency Owed**
Certificate of Correction (Fee Code 2811)	8-10-2021	160.00	160.00	0.00
Issue Fee (Fee Code 2501)	4-14-2021	600.00	1200.00	600.00
Submission of IDS (Fee Code 2806)	1-7-2021	130.00	260.00	130.00
Terminal Disclaimer (Fee Code 2814)	12-18-2020	170.00	170.00	0.00
Independent Excess Claim Fees (Fee Code 2201)	9-21-2020	230.00	480.00	250.00
Excess claim fee (15) (Fee Code 2202)	9-21-2020	750.00	1500.00	750.00
Late Filing Fee for Oath/Dec (Fee Code 2051)	9-22-2020	80.00	160.00	80.00

Type of Fee	Date Paid	Fee Paid	Current Fee	Deficiency Owed
Processing Fee (Fee Code 2830)	9-21-2020	70.00	140.00	70.00
Basic filing fee (Fee Code 4011)	9-21-2020	75.00	320.00	245.00
Utility examination fee (Fee Code 2311)	9-21-2020	380.00	800.00	420.00
Request for prioritized examination (Fee Code 2817)	9-21-2020	2000.00	4200.00	2,200.00
Utility search fee (Fee Code 2111)	9-21-2020	330.00	700.00	370.00
TOTAL		**4975.00**	**10,090.00**	**5,115.00**

Total deficiency owed is ~~$5,890 - $2975 = $2,915.00~~ $10,090 – $4975 = $5115

The Commissioner is authorized to charge the requisite fees owed to Deposit Account No. 19-0733 (a total for this corrective notice and the Original Notice of $5115—the deficiency of the previous deficiency payment if the latter was/is separately charged, i.e., $5115 - $2915 = $2200).

If any other fees are required or if an overpayment is made, the Commissioner is authorized to debit or credit our Deposit Account No. 19-0733, accordingly.

Respectfully submitted,

BANNER & WITCOFF, LTD.

Dated: July 20, 2022

By: /Scott M Kelly/
Scott M. Kelly
Registration No. 65,121

1100 13th Street, N.W.
Washington, D.C. 20005-4051
Tel: (202) 824-3000
Fax: (202) 824-3001

Electronic Acknowledgement Receipt

EFS ID:	46232072
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Scott M Kelly/Victoria van de Veerdonk
Filer Authorized By:	Scott M Kelly
Attorney Docket Number:	007742.00188\US
Receipt Date:	20-JUL-2022
Filing Date:	21-SEP-2020
Time Stamp:	13:37:04
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	Notification of loss of entitlement to small entity status	CORRECTIVE_NOTICE_Loss_of_Entitlement_of_Small_Entity_Status_and_payment_of_fees_22021378.pdf	28326 0fdd3959294a35f48f29a1e7bde718d14af08688	no	4

Warnings:

Information:	
Total Files Size (in bytes):	28326

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.

Docket No.: 007742.00188US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No. 11,012,474

Inventors: Steven Rogers et al.

Application No.: 17/027,436 Confirmation No.:7579

Filed: September 21, 2020 Art Unit: 2497

For: Methods and Systems for Protecting a Secured Network Examiner: C. Huang

NOTICE OF TEMPORARY LOSS OF ENTITLEMENT TO SMALL ENTITY STATUS AND PAYMENT OF DEFICIENCY OF FEES OWED

Commissioner for Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Dear Commissioner:

In accordance with 37 C.F.R. § 1.28(c), Applicant recently realized that it was not entitled to small entity status at the time it made certain payments to the Office as noted in the table below, and Applicant submits this payment of deficiency of fees owed. The loss of entitlement to small entity status occurred prior to the earliest of the below-noted payments. Applicant's failure to previously notify the Office of the loss of entitlement to small entity status as required by 37 C.F.R. § 1.27(g)(2) occurred in good faith and without any deceptive intent.

Applicant regained entitlement to small entity status as of January 1, 2022, and Applicant claims small entity status as of that date and continuing through the present date.

As required by 37 C.F.R. § 1.28(c)(1) and (2), Applicant itemizes the deficiency of fees owed for the above-identified application as follows:

Type of Fee	Date Paid	Fee Paid	Current Fee	Deficiency Owed
Certificate of Correction (Fee Code 2811)	8/10/2021	160.00	160.00	0.00
Issue Fee (Fee Code 2501)	4/14/2021	600.00	1200.00	600.00
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Excess claim fee (15) (Fee Code 2202)	9/21/2020	750.00	1500.00	750.00
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Basic filing fee (Fee Code 4011)	9/21/2020	75.00	320.00	245.00
Utility examination fee (Fee Code 2311)	9/21/2020	380.00	800.00	420.00

Type of Fee	Date Paid	Fee Paid	Current Fee	Deficiency Owed
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Utility search fee (Fee Code 2111)	9/21/2020	330.00	700.00	370.00
TOTAL		**4975.00**	**10,090.00**	**5,115.00**

Total deficiency owed is $5,890- $2975 = $2,915.00

The Commissioner is authorized to charge the requisite fees owed to Deposit Account No. 19-0733.

If any other fees are required or if an overpayment is made, the Commissioner is authorized to debit or credit our Deposit Account No. 19-0733, accordingly.

Respectfully submitted,

BANNER & WITCOFF, LTD.

Dated: July 18, 2022

By: /Scott M Kelly/
Scott M. Kelly
Registration No. 65,121

1100 13th Street, N.W.
Washington, D.C. 20005-4051
Tel: (202) 824-3000
Fax: (202) 824-3001

Electronic Acknowledgement Receipt

EFS ID:	46207721
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Scott M Kelly/Victoria van de Veerdonk
Filer Authorized By:	Scott M Kelly
Attorney Docket Number:	007742.00188\US
Receipt Date:	18-JUL-2022
Filing Date:	21-SEP-2020
Time Stamp:	09:00:43
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	Notification of loss of entitlement to small entity status	Loss_of_Entitlement_of_Small_Entity_Status_and_payment_of_fees_22015053.pdf	25285 0b8e2cedace7f643011fe3343a71fedd315296cb	no	3

Warnings:

Information:	
Total Files Size (in bytes):	25285

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 11,012,474 B2
APPLICATION NO. : 17/027436
DATED : May 18, 2021
INVENTOR(S) : Steven Rogers et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Page 5, Column 1, Line 31, item [56]:
Delete "Aciton" and insert --Action--

In the Claims

Column 26, Claim 9, Line 46:
Delete "the last" and insert --the at--

Signed and Sealed this
Seventh Day of September, 2021

Drew Hirshfeld
Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No. 17/027,436	)	Serial No. 17/027,436
	)	
Inventor(s): Steven Rogers, et al.	)	Filed: September 21, 2020
	)	
Issue Date: May 18, 2021	)	Attorney Docket No. 007742.00188

For: METHODS AND SYSTEMS FOR PROTECTING A SECURED NETWORK

REQUEST FOR CERTIFICATE OF CORRECTION

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building, Mail Stop: Certificate of Correction Branch
401 Dulany Street
Alexandria, VA 22314

Sir:

Pursuant to 35 U.S.C. § 255 and 37 C.F.R. § 1.323, Applicant requests the issuance of a Certificate of Correction in the above-identified patent. A copy of PTO Form 1050 is appended. The complete Certificate of Correction involves one page.

The mistakes identified in the appended Form occurred through no fault of the Patent and Trademark Office, as disclosed by the records of the application, which matured into this patent. These errors occurred in good faith without deceptive intent.

Issuance of the Certificate of Correction containing the corrections is earnestly requested. Please charge the requisite fee of $160.00, and any additional fee, which may be associated to our Deposit Account No. 19-0733.

Respectfully submitted,

BANNER & WITCOFF, LTD.

Dated: Aug. 10, 2021

By: */Kirk A. Sigmon/*
Kirk A. Sigmon
Registration No. 76,326

Banner & Witcoff, Ltd.
1100 13th St., NW, Suite 1200
Washington, D.C. 20005
(202) 824-3000

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.: 11,012,474

DATED: May 18, 2021

INVENTOR(S): Steven Rogers, et al.

It is certified that errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Page 5, Column 1, Line 31, under Other Publications:
Please delete "Aciton" and insert --Action--

Column 26, Claim 9, Line 46:
Please delete "the last" and insert --the at--

Mailing Address of Sender:

Banner & Witcoff, Ltd.
1100 13th Street, N.W., Suite 1200
Washington, DC 20005-4051

U.S. PAT. NO _____

No. of add'l copies
@ $0.50 per page

☐ _____

FORM PTO 1050 (Rev.2-93)

Electronic Patent Application Fee Transmittal

Application Number:	17027436
Filing Date:	21-Sep-2020
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Filer:	Kirk Allen Sigmon/Kelly Pilkerton
Attorney Docket Number:	007742.00188\US

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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:				
CERTIFICATE OF CORRECTION	2811	1	160	160

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Electronic Acknowledgement Receipt

EFS ID:	43470185
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/Kelly Pilkerton
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	10-AUG-2021
Filing Date:	21-SEP-2020
Time Stamp:	13:15:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$160
RAM confirmation Number	E202180D17550137
Deposit Account	190733
Authorized User	Kelly Pilkerton

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	Request_for_CoC_21397293.PDF	124768 b100fd54e86dbe9b8e5a922b61bfb1be103cb85b	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37902 e0595e30c0ff81dcfbf5a3ac4e4824e1238092d0	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	162670		

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.

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.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/027,436	05/18/2021	11012474	007742.00188\US	7579

22907 7590 04/28/2021

BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

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 0 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 Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Steven Rogers, Leesburg, VA;
Centripetal Networks, Inc., Portsmouth, NH;
Sean Moore, Hollis, NH;
David K. Ahn, Winston-Salem, NC;
Peter P. Geremia, Portsmouth, NH;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B–FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By fax, send to: (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)

BANNER & WITCOFF, LTD.
1100 13th St. NW
STE 1200
Washington, DC 20005

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
17/027,436	09/21/2020	Steven Rogers	007742.00188\US	7579

TITLE OF INVENTION: Methods and Systems for Protecting a Secured Network

APPLN: TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600.00			$600.00	04/15/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
C. Huang	2497	726-001

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 03-09 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. Banner & Witcoff, Ltd.
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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Centripetal Networks, Inc.

(B) RESIDENCE: (CITY and STATE or COUNTRY): Portsmouth, New Hampshire

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees Submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment (*Please first reapply any previously paid fee shown above*):

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 19-0733

5. Change of Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29. NOTE: Absent a valid Certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

☐ Applicant asserting small entity status. See 37 CFR 1.27. NOTE: If the application was previously under micro entity status, checking this box will be taken as a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status. NOTE: Checking this box will be taken as a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature: /Kirk A. Sigmon/ Date: April 12, 2021

Typed or printed name: Kirk A. Sigmon Registration No. 76,326

Electronic Patent Application Fee Transmittal

Application Number:	17027436
Filing Date:	21-Sep-2020
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Filer:	Kirk Allen Sigmon/Jessica Williams
Attorney Docket Number:	007742.00188\US

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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:				
UTILITY APPL ISSUE FEE	2501	1	600	600

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**600**

Electronic Acknowledgement Receipt

EFS ID:	42451283
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/Jessica Williams
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	14-APR-2021
Filing Date:	21-SEP-2020
Time Stamp:	13:33:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$600
RAM confirmation Number	E20214DD34092573
Deposit Account	190733
Authorized User	Jessica Williams

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	774200188issuefeetrans_21186179.pdf	140047 a879621635cce0fb216959c672c40b5943811383	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30517 b0b85edb395fb412ac6a91ed31d90772d40c43d8	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	170564		

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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.

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.
17/027,436	09/21/2020	Steven Rogers	007742.00188\US	7579

22907 7590 04/08/2021

BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

EXAMINER
HUANG, CHENG-FENG

ART UNIT	PAPER NUMBER
2497	

NOTIFICATION DATE	DELIVERY MODE
04/08/2021	ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

GPD@bannerwitcoff.com
eofficeaction@bannerwitcoff.com

Corrected ***Notice of Allowability***	**Application No.** 17/027,436	**Applicant(s)** Rogers et al.	
	Examiner CHENG-FENG HUANG	**Art Unit** 2497	**AIA (FITF) Status** Yes

-- 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 03/31/2021.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-32 and 35 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   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.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/CHENG-FENG HUANG/
Examiner, Art Unit 2497

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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	17027436
Filing Date	2020-09-21
First Named Inventor	Steven Rogers
Art Unit	2497
Examiner Name	C. Huang
Attorney Docket Number	007742.00188\US

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
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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	20130227674	A1	2013-08-29	ANDERSON	
	2	20130227672	A1	2013-08-29	Ogg et al.	
	3	20140289791	A1	2014-09-25	Acharya et al.	
	4	20130212639	A1	2013-08-15	ZHAO et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.H./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17027436
	Filing Date	2020-09-21
	First Named Inventor	Steven Rogers
	Art Unit	2497
	Examiner Name	C. Huang
	Attorney Docket Number	007742.00188\US

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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	2021 Mar 30 - (US) Non-Final Office Action - App No. 16/158,868	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/CHENG-FENG HUANG/	Date Considered	04/05/2021

*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.

Keysight Technologies Ex. 1002

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.H./

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17027436
Filing Date	2020-09-21
First Named Inventor	Steven Rogers
Art Unit	2497
Examiner Name	C. Huang
Attorney Docket Number	007742.00188\US

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
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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	20130227674	A1	2013-08-29	ANDERSON	
	2	20130227672	A1	2013-08-29	Ogg et al.	
	3	20140289791	A1	2014-09-25	Acharya et al.	
	4	20130212639	A1	2013-08-15	ZHAO et al.	

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

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17027436
	Filing Date	2020-09-21
	First Named Inventor	Steven Rogers
	Art Unit	2497
	Examiner Name	C. Huang
	Attorney Docket Number	007742.00188\US

	1						

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	2021 Mar 30 - (US) Non-Final Office Action - App No. 16/158,868	

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17027436
	Filing Date	2020-09-21
	First Named Inventor	Steven Rogers
	Art Unit	2497
	Examiner Name	C. Huang
	Attorney Docket Number	007742.00188\US

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.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

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	/Kirk A. Sigmon/	Date (YYYY-MM-DD)	2021-03-30
Name/Print	Kirk A. Sigmon	Registration Number	76,326

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.**

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.

Electronic Acknowledgement Receipt

EFS ID:	42328189
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/Jessica Williams
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	31-MAR-2021
Filing Date:	21-SEP-2020
Time Stamp:	08:44:07
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) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF_21157608.pdf	1034354 138ec2d9dab40b1cd7f48edd5bbe2218d05cd6ad	no	4

Warnings:

Information:					
2	Non Patent Literature	774200188npl_21158204.pdf	1214806 8bce48cdf824d1cf60c0cdbad0726133d6d0ab32	no	33
Warnings:					
Information:					
			Total Files Size (in bytes):	2249160	

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New Applications Under 35 U.S.C. 111

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New International Application Filed with the USPTO as a Receiving Office

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UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

22907 7590 01/15/2021
BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

EXAMINER
HUANG, CHENG-FENG

ART UNIT	PAPER NUMBER
2497	

DATE MAILED: 01/15/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/027,436	09/21/2020	Steven Rogers	007742.00188\US	7579

TITLE OF INVENTION: Methods and Systems for Protecting a Secured Network

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	04/15/2021

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

22907 7590 01/15/2021
BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/027,436	09/21/2020	Steven Rogers	007742.00188\US	7579

TITLE OF INVENTION: Methods and Systems for Protecting a Secured Network

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	04/15/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
HUANG, CHENG-FENG	2497	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 03-09 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

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.
17/027,436	09/21/2020	Steven Rogers	007742.00188\US	7579

22907 7590 01/15/2021

BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

EXAMINER	
HUANG, CHENG-FENG	
ART UNIT	**PAPER NUMBER**
2497	

DATE MAILED: 01/15/2021

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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 30 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.

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 disclosure of these records is required by the Freedom of Information Act.
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 inspection 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.

Keysight Technologies Ex. 1002

Notice of Allowability	Application No. 17/027,436	Applicant(s) Rogers et al.	
	Examiner CHENG-FENG HUANG	Art Unit 2497	AIA (FITF) Status Yes

-- 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 12/18/2020.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-32 and 35 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   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.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☑ Other Applicant Email and Proposed Amendment.

/CHENG-FENG HUANG/
Examiner, Art Unit 2497

DETAILED ACTION

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Amendment

2. This communication is in response to applicant's amendment filed on 12/18/2020. Claims 1, 9-15, 17, 20, 25, 33, and 34 have been amended and no claims are added or canceled. Claims 1-35 are presently pending for examination.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 01/07/2021, has been reviewed. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Response to Arguments

Claim Objections:

4. Applicant' s arguments with respect to objection of claim(s) 10-15, and 25 have been considered. The objection of claim(s) 10-15, and 25 have been withdrawn in view of the amendment to claim.

Double Patenting (DP):

5. Applicant submitted an eTD on 12/18/2020 to overcome DP rejection issued in the previous office action. The eTD has been approved. The DP rejection issued in the

previous action has been withdrawn.

Claim Rejections - 35 U.S.C. § 103:

6. Applicants' arguments with respect to claims rejected under prior art have been fully considered and the rejection of 35 U.S.C. § 103 have been withdrawn in view of the examiner's amendment to claim.

EXAMINER'S AMENDMENT

7. 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.

8. Authorization for this examiner's amendment was given in a telephone interview with Attorney Kirk A. Sigmon (Reg. No. 76,326) on 01/06/2021.

The application has been amended as follows:

- ***Please replace claim 1 with:***

1. (Currently amended) A method of filtering packets at a packet security gateway configured for protection of a network, wherein the packet security gateway is capable of receiving a plurality of dynamic security policies and is associated with a security policy management server external from the network, the method comprising:

receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, wherein at least two of the plurality of malicious host tracker services are managed by different organizations, wherein one or more of the packet filtering rules were added, removed, or altered by the security policy management server based on a correlation between portions of the malicious traffic information, and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

performing, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on content determined from the inspection of that individual packet.

- ***Please replace claim 9 with:***

9. (Currently Amended) A packet security gateway configured for protection of a network, capable of receiving a plurality of dynamic security policies and associated with a security policy management server external from the network, the packet security gateway comprising:

at least one processor; and

memory comprising instructions that, when executed by the last least one processor, cause the packet security gateway to:

receive, from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, <u>wherein at least two of the plurality of malicious host tracker services are managed by different organizations, wherein one or more of the packet filtering rules were added, removed, or altered by the security policy management server based on a correlation between portions of the malicious traffic information,</u> and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

perform, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on content determined from the inspection of that individual packet.

- ***Please replace claim 17 with:***

17. (Currently Amended) One or more non-transitory computer-readable media comprising instructions that, when executed by one or more processors of a packet security gateway configured to protect a network, cause the packet security gateway to:

receive, from a security policy management server, a dynamic security policy comprising packet filtering rules, wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, <u>wherein at least two of the plurality of malicious host tracker services are managed by</u>

different organizations, wherein one or more of the packet filtering rules were added, removed, or altered by the security policy management server based on a correlation between portions of the malicious traffic information, and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

perform, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on content determined from the inspection of that individual packet.

- ***Please replace claim 25 with:***

25. (Currently Amended) A system comprising:

a security policy management server external from a network associated with a packet security gateway, wherein the security policy management server comprises:

one or more first processors; and

first memory storing first instructions that, when executed by one or more first processors, cause the security policy management server to:

receive, from a plurality of malicious host tracker services, first malicious traffic information, wherein at least two of the plurality of malicious host tracker services are managed by different organizations;

automatically create, based on the first malicious traffic information, a dynamic security policy or [[patent]] packet filtering rules of the dynamic security policy, wherein a first packet filtering rule of the [[patent]] packet filtering rules comprise:

one or more packet matching criteria comprising a corresponding network addresses,

one or more corresponding packet transformation functions, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

add, remove, or alter the one or more rules of the dynamic security policy based, at least in part, on making a correlation between portions of the first malicious traffic information;

the packet security gateway, wherein the packet security gateway is configured for protection of a network and associated with the security policy management server external from the network, the packet security gateway comprising:

one or more second processors; and

second memory storing second instructions that, when executed by one or more second processors, cause the packet security gateway to:

receive, from the security policy management server, the dynamic security policy comprising the packet filtering rules; and

perform, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on content determined from the inspection of that individual packet.

- ***Please cancel claim 33;***
- ***Please cancel claim 34;***

Allowable Subject Matter

9. Claims 1-32, and 35 are allowed.

10. The following is an examiner's statement of reasons for allowance:

Independent Claim(s) and their respective dependent claims are allowable over prior arts since the prior arts taken individually or in combination fails to particular discloses, fairly suggest or render obvious the following italic limitations:

In regards to claim(s) 1, 9, 17 and 25, the prior art of record (Xie et al. (US 2012/0304244 A1; hereinafter Xie) in view of Nakae et al. (US 2004/0172557 A1; hereinafter Nakae, as cited by the applicant in the 09/21/2020 IDS)) does not disclose:

"***wherein at least two of the plurality of malicious host tracker services are managed by different organizations, wherein one or more of the packet filtering rules were added, removed, or altered by the security policy management server based on a correlation between portions of the malicious traffic information***" in combination with other limitations recited as specified in the independent claim(s).

Rather, Xie discloses "*deny or permit network transmission based on a set of rules*" ([0017], [0018], [0025-0027], and [0041-42]). Similarly, Nakae teaches "*access control rule composed of a combination of rule matching conditions*" ([0029], [0113-0114]). Accordingly, the claims are allowed.

11. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHENG-FENG HUANG whose telephone number is (571)272-6186. The examiner can normally be reached on Monday-Friday: 9 am - 5 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni A Shiferaw can be reached on (571) 272-3867. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/CHENG-FENG HUANG/
Examiner, Art Unit 2497

Examiner-Initiated Interview Summary	**Application No.** 17/027,436	**Applicant(s)** Rogers et al.		
	Examiner CHENG-FENG HUANG	**Art Unit** 2497	**AIA (First Inventor to File) Status** Yes	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
CHENG-FENG HUANG	Primary Examiner	Telephonic
Kirk A. Sigmon	Attorney of Record	

Date of Interview: 06 January 2021

Issues Discussed:

35 U.S.C. 103

Examiner suggested to further amend the claims to put the application in the condition of allowance by 1) moving up claims 33 and 34 into claim 25; and 2) amending all independent claims with similar limitations. Agreement was reached.

/CHENG-FENG HUANG/ Examiner, Art Unit 2497	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Notice of References Cited	Application/Control No. 17/027,436	Applicant(s)/Patent Under Reexamination Rogers et al.	
	Examiner CHENG-FENG HUANG	Art Unit 2497	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-8239687-B2	08-2012	Stolfo; Salvatore J.	G06F21/55	713/188
*	B	US-8644342-B2	02-2014	Stolfo; Salvatore J	G06F21/563	370/474
*	C	US-9003528-B2	04-2015	Stolfo; Salvatore J.	H04L63/0263	726/23
*	D	US-20110173692-A1	07-2011	Liu; Xiang-Yang A.	H04L63/101	726/13
*	E	US-7818797-B1	10-2010	Fan; Wei	H04L63/1425	726/22
*	F	US-20040172557-A1	09-2004	Nakae, Masayuki	H04L63/0263	726/22
*	G	US-20060146816-A1	07-2006	Jain; Hemant Kumar	H04L63/1408	370/389
*	H	US-20020107953-A1	08-2002	Ontiveros, Mark	H04L63/0263	709/224
*	I	US-20090271857-A1	10-2009	Wang; Jia	H04L47/2441	726/11
*	J	US-20080201772-A1	08-2008	Mondaeev; Maxim	H04L63/20	726/13
*	K	US-20110231924-A1	09-2011	Devdhar; Rakendu	H04L63/1416	726/11
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*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.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	Art Unit
	CHENG-FENG HUANG	2497

CPC - Searched*		
Symbol	Date	Examiner
H04L63/20 or H04L63/0218 or H04L63/0263 or H04L67/02 or H04L63/1425 or H04L63/0209 or H04L63/0236 or H04L63/168	11/18/2020	C. H.
H04L63/20 or H04L63/0209 or H04L63/0218 or H04L67/02 or H04L63/0263 or H04L63/0236 or H04L63/1425 or H04L63/168	01/07/2021	C. H.

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST Searches (including inventor and asignee search)	11/18/2020	C. H.
EAST classification search (keywords combined with CPC)	11/18/2020	C. H.
NPL: detect malicious traffic information using dynamic security policy for network protection	11/18/2020	C. H.
IPR2018-01386 Reviewed Petition for Inter Partes Review of US Patent No. 9,565,213	11/19/2020	C. H.
IPR2018-01443 Reviewed Petition for Inter Partes Review of US Patent No. 9,137,205	11/19/2020	C. H.
IPR2018-01444 Reviewed Petition for Inter Partes Review of US Patent No. 9,137,205	11/19/2020	C. H.

/CHENG-FENG HUANG/ Examiner, Art Unit 2497	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	Art Unit
	CHENG-FENG HUANG	2497

IPR2018-01505 Reviewed Petition for Inter Partes Review of US Patent No. 9,137,205	11/20/2020	C. H.
IPR2018-01506 Reviewed Petition for Inter Partes Review of US Patent No. 9,137,205	11/20/2020	C. H.
IPR2018-01512 Reviewed Petition for Inter Partes Review of US Patent No. 9,565,213	11/20/2020	C. H.
IPR2018-01513 Reviewed Petition for Inter Partes Review of US Patent No. 9,560,077	11/20/2020	C. H.
Above Searches Updated	01/07/2021	C. H.
IPR2018-01386 Reviewed Petition for Inter Partes Review of US Patent No. 9,565,213	01/07/2021	C. H.
IPR2018-01443 Reviewed Petition for Inter Partes Review of US Patent No. 9,137,205	01/07/2021	C. H.
IPR2018-01444 Reviewed Petition for Inter Partes Review of US Patent No. 9,137,205	01/07/2021	C. H.
IPR2018-01505 Reviewed Petition for Inter Partes Review of US Patent No. 9,137,205	01/07/2021	C. H.
IPR2018-01506 Reviewed Petition for Inter Partes Review of US Patent No. 9,137,205	01/07/2021	C. H.
IPR2018-01512 Reviewed Petition for Inter Partes Review of US Patent No. 9,565,213	01/07/2021	C. H.
IPR2018-01513 Reviewed Petition for Inter Partes Review of US Patent No. 9,560,077	01/07/2021	C. H.
NPL Searches with IP.com	01/07/2021	C. H.
NPL Searches with Google Patents	01/07/2021	C. H.

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	General interference and searches of claim (PGPUB,USPAT)	01/07/2021	C. H.

/CHENG-FENG HUANG/ Examiner, Art Unit 2497	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	Art Unit
	CHENG-FENG HUANG	2497

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/18/2020	01/07/2021							
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3	3	✓	=							
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31	31	✓	=							
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	33	✓	-							
	34	✓	-							
33	35	✓	=							

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	**Art Unit**
	CHENG-FENG HUANG	2497

CPC						
Symbol					**Type**	**Version**
H04L	/	63	/	20	F	2013-01-01
H04L	/	63	/	0236	I	2013-01-01
H04L	/	63	/	0218	I	2013-01-01
H04L	/	67	/	02	I	2013-01-01
H04L	/	63	/	1425	I	2013-01-01
H04L	/	63	/	0263	I	2013-01-01
H04L	/	63	/	0209	I	2013-01-01
H04L	/	63	/	168	A	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	33	
/CHENG-FENG HUANG/ Examiner, Art Unit 2497	07 January 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	**Art Unit**
	CHENG-FENG HUANG	2497

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04L	/	29	/	06

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
726	1

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	33	
/CHENG-FENG HUANG/ Examiner, Art Unit 2497	07 January 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20210107

Keysight Technologies Ex. 1002
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	**Art Unit**
	CHENG-FENG HUANG	2497

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

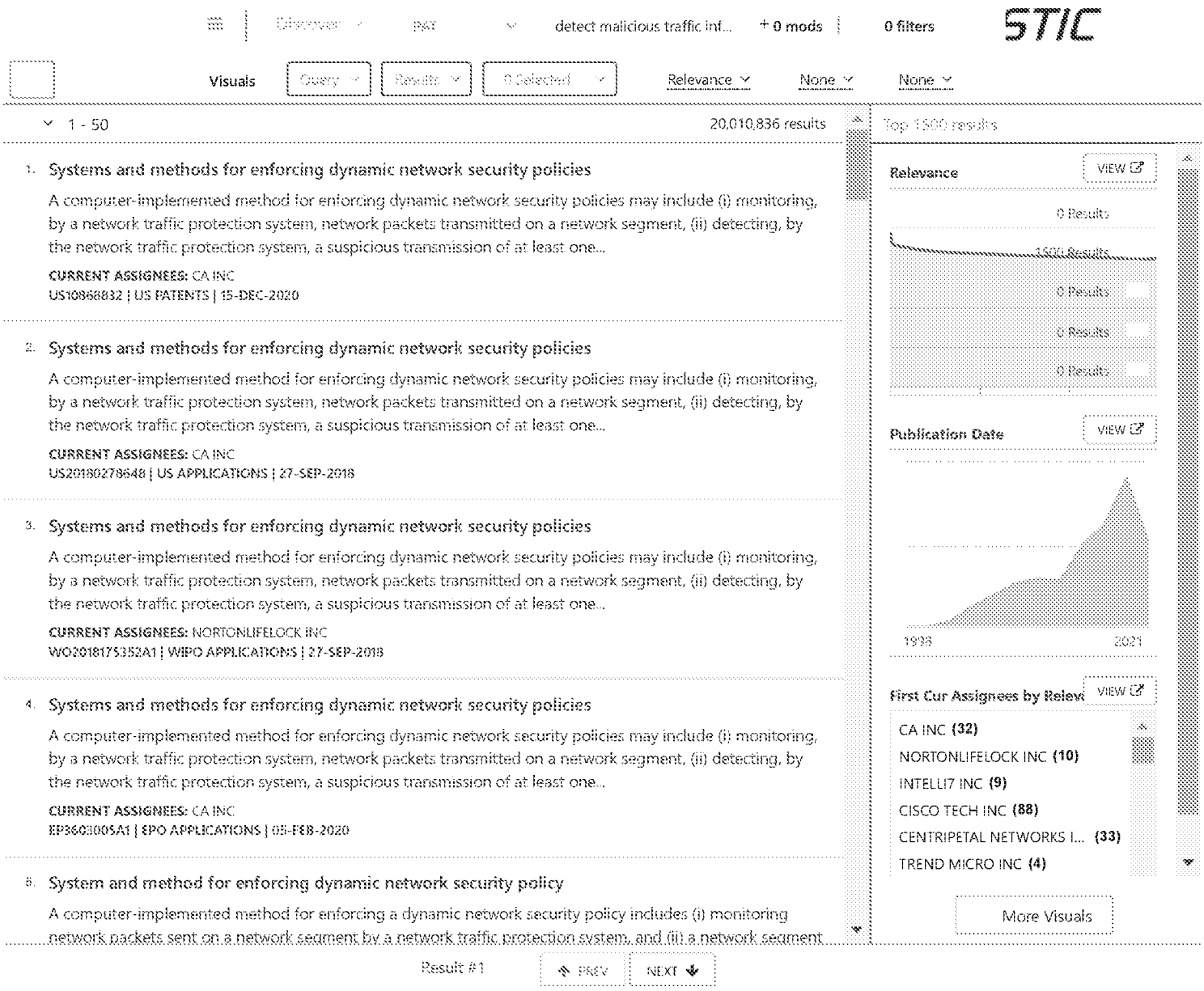
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2	2	11	11	20	20	29	29								
3	3	12	12	21	21	30	30								
4	4	13	13	22	22	31	31								
5	5	14	14	23	23	32	32								
6	6	15	15	24	24		33								
7	7	16	16	25	25		34								
8	8	17	17	26	26	33	35								
9	9	18	18	27	27										

NONE		**Total Claims Allowed:**
(Assistant Examiner)	(Date)	33
/CHENG-FENG HUANG/ Examiner, Art Unit 2497	07 January 2021	O.G. Print Claim(s): 1 / O.G. Print Figure: 1
(Primary Examiner)	(Date)	

U.S. Patent and Trademark Office

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Discover
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STIC
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Query
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0 Selected
Relevance
None
None
1 - 50
20,010,836 results
Top 1500 results
1. Systems and methods for enforcing dynamic network security policies
A computer-implemented method for enforcing dynamic network security policies may include (i) monitoring, by a network traffic protection system, network packets transmitted on a network segment, (ii) detecting, by the network traffic protection system, a suspicious transmission of at least one...
CURRENT ASSIGNEES: CA INC
US10868832 | US PATENTS | 15-DEC-2020
2. Systems and methods for enforcing dynamic network security policies
A computer-implemented method for enforcing dynamic network security policies may include (i) monitoring, by a network traffic protection system, network packets transmitted on a network segment, (ii) detecting, by the network traffic protection system, a suspicious transmission of at least one...
CURRENT ASSIGNEES: CA INC
US20180278648 | US APPLICATIONS | 27-SEP-2018
3. Systems and methods for enforcing dynamic network security policies
A computer-implemented method for enforcing dynamic network security policies may include (i) monitoring, by a network traffic protection system, network packets transmitted on a network segment, (ii) detecting, by the network traffic protection system, a suspicious transmission of at least one...
CURRENT ASSIGNEES: NORTONLIFELOCK INC
WO2018175352A1 | WIPO APPLICATIONS | 27-SEP-2018
4. Systems and methods for enforcing dynamic network security policies
A computer-implemented method for enforcing dynamic network security policies may include (i) monitoring, by a network traffic protection system, network packets transmitted on a network segment, (ii) detecting, by the network traffic protection system, a suspicious transmission of at least one...
CURRENT ASSIGNEES: CA INC
EP3603005A1 | EPO APPLICATIONS | 05-FEB-2020
5. System and method for enforcing dynamic network security policy
A computer-implemented method for enforcing a dynamic network security policy includes (i) monitoring network packets sent on a network segment by a network traffic protection system, and (ii) a network segment
Relevance
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0 Results
0 Results
0 Results
0 Results
Publication Date
VIEW
1998
2021
First Cur Assignees by Relev
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CA INC (32)
NORTONLIFELOCK INC (10)
INTELLI7 INC (9)
CISCO TECH INC (88)
CENTRIPETAL NETWORKS I... (33)
TREND MICRO INC (4)
More Visuals
Result #1
PREV
NEXT

Proposed Examiner's Amendment of Jan. 6, 2021
USAN 17/027,436; BW 007742.00188

1. (Currently Amended) A method of filtering packets at a packet security gateway configured for protection of a network, wherein the packet security gateway is capable of receiving a plurality of dynamic security policies and is associated with a security policy management server external from the network, the method comprising:

receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, wherein at least two of the plurality of malicious host tracker services are managed by different organizations, wherein one or more of the packet filtering rules were added, removed, or altered by the security policy management server based on a correlation between portions of the malicious traffic information, and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

performing, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on content determined from the inspection of that individual packet.

2. (Original) The method of claim 1, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

3. (Original) The method of claim 1, wherein at least one packet transformation function comprises a network protection action.

4. (Original) The method of claim 1, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the method further comprises:

sending, by the packet security gateway, the first plurality of packets in the first forwarding queue; and

sending, by the packet security gateway, the second plurality of packets in the second forwarding queue.

5. (Original) The method of claim 1, further comprising:

receiving, by the packet security gateway and using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

performing at least one packet transformation function at the network layer.

6. (Original) The method of claim 1, wherein the packet security gateway is a LAN switch.

7. (Original) The method of claim 1, wherein the filtering each packet comprises:

filtering one packet at a time; and

performing a packet digest logging function with respect to each filtered packet.

8. (Original) The method of claim 7, wherein, the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

9. (Currently Amended) A packet security gateway configured for protection of a network, capable of receiving a plurality of dynamic security policies and associated with a security policy management server external from the network, the packet security gateway comprising:

at least one processor; and

memory comprising instructions that, when executed by the last least one processor, cause the packet security gateway to:

receive, from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, wherein at least two of the plurality of malicious host tracker services are managed by different organizations, wherein one or more of the packet filtering rules were added, removed, or altered by the security policy management server based on a correlation between portions of the malicious traffic information, and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

perform, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on content determined from the inspection of that individual packet.

10. (Previously Presented) The packet security gateway of claim 9, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

11. (Previously Presented) The packet security gateway of claim 9, wherein at least one packet transformation function comprises a network protection action.

12. (Previously Presented) The packet security gateway of claim 9, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

13. (Previously Presented) The packet security gateway of claim 9, wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

perform at least one packet transformation function at the network layer.

14. (Previously Presented) The packet security gateway of claim 9, wherein the packet security gateway is a LAN switch.

15. (Previously Presented) The packet security gateway of claim 9, wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

16. (Original) The packet security gateway of claim 15, wherein the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

17. (Currently Amended) One or more non-transitory computer-readable media comprising instructions that, when executed by one or more processors of a packet security gateway configured to protect a network, cause the packet security gateway to:

receive, from a security policy management server, a dynamic security policy comprising packet filtering rules, wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, wherein at least two of the plurality of malicious host tracker services are managed by different organizations, wherein one or more of the packet filtering rules were added, removed, or altered by the security policy management server based on a correlation between portions of the malicious traffic information, and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

perform, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on content determined from the inspection of that individual packet.

18. (Original) The one or more non-transitory computer-readable media of claim 17, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

19. (Original) The one or more non-transitory computer-readable media of claim 17, wherein at least one packet transformation function comprises a network protection action.

20. (Previously Presented) The one or more non-transitory computer-readable media of claim 17, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

21. (Original) The one or more non-transitory computer-readable media of claim 17, wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

perform at least one packet transformation function at the network layer.

22. (Original) The one or more non-transitory computer-readable media of claim 17, wherein the packet security gateway is a LAN switch.

23. (Original) The one or more non-transitory computer-readable media of claim 17, wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

24. (Original) The one or more non-transitory computer-readable media of claim 23, wherein the packet digest logging function comprises:

identifying a subset of information in the packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

25. (Currently Amended) A system comprising:

a security policy management server external from a network associated with a packet security gateway, wherein the security policy management server comprises:

one or more first processors; and

first memory storing first instructions that, when executed by one or more first processors, cause the security policy management server to:

receive, from a plurality of malicious host tracker services, first malicious traffic information, wherein at least two of the plurality of malicious host tracker services are managed by different organizations;

automatically create, based on the first malicious traffic information, a dynamic security policy or [[patent]] packet filtering rules of the dynamic security policy, wherein a first packet filtering rule of the [[patent]] packet filtering rules comprise:

one or more packet matching criteria comprising a corresponding network addresses,

one or more corresponding packet transformation functions, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

add, remove, or alter the one or more rules of the dynamic security policy based, at least in part, on making a correlation between portions of the first malicious traffic information;

the packet security gateway, wherein the packet security gateway is configured for protection of a network and associated with the security policy management server external from the network, the packet security gateway comprising:

one or more second processors; and

second memory storing second instructions that, when executed by one or more second processors, cause the packet security gateway to:

receive, from the security policy management server, the dynamic security policy comprising the packet filtering rules; and

perform, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on content determined from the inspection of that individual packet.

26. (Original) The system of claim 25, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

27. (Original) The system of claim 25, wherein at least one packet transformation function comprises a network protection action.

28. (Original) The system of claim 25, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a

higher forwarding rate than the second forwarding queue, and wherein the second instructions, when executed by the one or more second processors, further cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

29. (Original) The system of claim 25, wherein the second instructions, when executed by the one or more second processors, further cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

performing at least one packet transformation function at the network layer.

30. (Original) The system of claim 25, wherein the packet security gateway is a LAN switch.

31. (Original) The system of claim 25, wherein the second instructions, when executed by the one or more second processors, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

32. (Original) The system of claim 31, wherein, the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

33. (Cancelled) ~~The system of claim 25, wherein at least two of the plurality of malicious host tracker services are managed by different organizations.~~

34. (Cancelled) ~~The system of claim 25, wherein the first instructions, when executed by the one or more first processors, cause the security policy management server to:~~

~~add, remove or alter the one or more rules of the dynamic security policy based, at least in part, on making a correlation between the malicious traffic information received from the plurality of malicious host tracker services.~~

35. (Original) The system of claim 25, wherein at least one packet transformation function is configured to route associated packets to a monitoring device.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S92	0	"17027436"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 15:27
S93	189,217	(H04L63/20 or H04L63/0209 or H04L63/0218 or H04L67/02 or H04L63/0263 or H04L63/0236 or H04L63/1425 or H04L63/168).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 18:58
S94	153	S93 and (dynamic near security near policy)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:00
S95	34	S94 and (packet near2 filter$3 near2 rule)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:10
S96	0	S95 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:15
S97	1,068	((("ROGERS") near3 ("Steven")) OR (("MOORE") near3 ("Sean")) OR (("AHN") near3 ("David")) OR (("GEREMIA") near3 ("Peter"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2021/01/07 19:24
S98	198	((("CENTRIPETAL") near3 ("NETWORKS") near3 ("INC"))).AS,AANM.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:24
S99	1,179	S97 S98	US-PGPUB; USPAT;	OR	ON	2021/01/07 19:24

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S100	49	S99 and (dynamic near security near policy) and (packet near transformation near function)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:24
S101	0	S100 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:27
S102	189,217	(H04L63/20 or H04L63/0218 or H04L63/0263 or H04L67/02 or H04L63/1425 or H04L63/0209 or H04L63/0236 or H04L63/168).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:30
S103	898	S102 and (packet near2 filter$3 near2 rule)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:30
S104	22	S103 and (malicious with track$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:30
S105	1	S104 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:30
S106	0	(two near6 (malicious near2 host near2 tracker near2 service) with managed with (different near2 organization))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:41
S107	0	((add$4 remov$3 alter$3) near6 rule with (dynamic near2 security	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2021/01/07 19:46

		near2 policy) with correlat$3 with (malicious near2 traffic))	EPO; JPO; DERWENT; IBM_TDB			
S108	9,721	(packet same filter$3 same inspect$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:47
S109	4,899	S108 and (protect$3 with network)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:47
S110	463	(malicious with track$3) and match$3 with (transform$5 or chang$3 or alter$3 or control$4 or temper$4 or construct$3 or re$1construct$4 or re$1buil$4 or buil$4 or regenerat$3 or develop$3 or chang$3 or adjust$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:47
S111	30	S109 and S110	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:47
S112	6	S111 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:47
S113	27	("20030188189" | "20040172557" | "20050015624" | "20050182969" | "20060080656" | "20070006303" | "20080010251" | "6826694" | "6928549" | "7032031").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:51
S114	4	("6161130").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:51
S115	18	("6778995" | "6820081" | "6888548" | "6978274" | "7035876" | "7080076").PN.	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2021/01/07 19:51

			EPO; JPO; DERWENT; IBM_TDB			
S116	3	("6856694").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:51
S117	52	S113 S114 S115 S116	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:51
S118	1	S117 and (packet near2 filter$3 near2 rule)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:51
S119	0	S117 and match$3 with transform$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:54
S120	0	S117 and (malicious with track$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/01/07 19:54

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S121	0	(two near6 (malicious near2 host near2 tracker near2 service) with managed with (different near2 organization)).clm.	US-PGPUB; USPAT	OR	ON	2021/01/07 19:41
S122	0	((add$4 remov$3 alter$3) near6 rule with (dynamic near2 security near2 policy) with correlat$3 with (malicious near2 traffic)).clm.	US-PGPUB; USPAT	OR	ON	2021/01/07 19:46

1/7/2021 7:55:41 PM
C:\Users\chuang2\Documents\EAST\Workspaces\17027436.wsp

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17027436
Filing Date	2020-09-21
First Named Inventor	Steven Rogers
Art Unit	2497
Examiner Name	C. Huang
Attorney Docket Number	007742.00188\US

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	Application Number	17027436
	Filing Date	2020-09-21
	First Named Inventor	Steven Rogers
	Art Unit	2497
	Examiner Name	C. Huang
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	3	Attachment 2 in German Nullity Action in EP3132587 dated April 29, 2020.	
	4	Attachment 3 in German Nullity Action in EP3132587 dated September 14, 2020.	
	5	Attachment 4 in German Nullity Action in EP3132587 dated September 26, 2018.	
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	7	Attachment 6 in German Nullity Action in EP3132587 dated October 1, 1996.	
	8	Attachment 7 in German Nullity Action in EP3132587 dated March 2009.	
	9	Attachment 8 in German Nullity Action in EP3132587 dated September 6, 2007.	
	10	Part 1 Attachment in German Nullity Action in EP3132587 dated December 18, 2020.	
	11	Attachment 9 in German Nullity Action in EP3132587 dated December 1998.	

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	13	Part 2 Attachment in German Nullity Action in EP3132587 dated December 2, 2020.	
	14	Part 3 Attachment in German Nullity Action in EP3132587 date unknown.	
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[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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Bibliographic Data

Application No: 17/027,436

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /CHENG-FENG HUANG/ Examiner's Signature | Initials

Title: Methods and Systems for Protecting a Secured Network

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/21/2020	726	2497	007742.00188\US
RULE			

APPLICANTS

Centripetal Networks, Inc., Portsmouth, NH,

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Steven Rogers, Leesburg, VA, UNITED STATES

Sean Moore, Hollis, NH, UNITED STATES

David K. Ahn, Winston-Salem, NC, UNITED STATES

Peter P. Geremia, Portsmouth, NH, UNITED STATES

CONTINUING DATA

This application is a CON of 16909327 06/23/2020

This application is a CIP of 16728766 12/27/2019 PAT 10785266

16909327 is a CON of 16448969 06/21/2019 PAT 10749906

16448969 is a CON of 16158868 10/12/2018

16728766 is a CON of 16111524 08/24/2018 PAT 10567437

16111524 is a CON of 15413834 01/24/2017 PAT 10091246

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15413834 is a CON of 14698560 04/28/2015 PAT 9560077

15414117 is a DIV of 14253992 04/16/2014 PAT 9565213

14698560 is a CON of 13657010 10/22/2012 PAT 9137205

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Patents | detect malicious traffic information using dynamic security policy for netw

About 96,055 results

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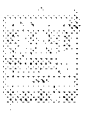
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Network connection detection and throttling



US · US7814542B1 · Mark Stuart Day · Cisco Technology, Inc.
Priority 2003-06-30 · Filed 2003-06-30 · Granted 2010-10-12 · Published 2010-10-12
Similar In an edge network, message traffic between the edge network and a core network passes through the edge router. A port scanning attack directed to the network as a whole (core network) potentially emanates from within the LAN. The edge router includes a network throttling device which identifies ...

Network switch based on whitelist



US JP KR · KR101455816781 · 김희원 · 한국전자통신연구원
Priority 2013-09-03 · Filed 2013-09-03 · Granted 2014-10-27 · Published 2014-10-27
Similar Disclosed is a network switch based on a whitelist to define corresponding rules based on access control lists and security policy and to monitor and block network traffic based on the corresponding rules. The disclosed network switch includes: a whitelist monitoring unit to allow communications ...

Kernel-based network security infrastructure



US · US7398388B2 · Daniel M. Teal · Coretrace Corporation
Priority 2001-12-20 · Filed 2002-11-14 · Granted 2008-07-08 · Published 2008-07-08
A system and method for network security using a kernel based network security infrastructure is disclosed The method comprises the installation of a computer code set into the operating system kernel of each computer on a network and use of the computer code set to detect and stop unwanted or ...

Security engine management apparatus and method in network nodes

WO KR · KR100502398B1 · 조수형 · 한국전자통신연구원
Priority 2003-09-29 · Filed 2003-09-29 · Granted 2005-07-25 · Published 2005-07-25
Similar In a security engine management apparatus in network nodes, a security instruction and library subsystem processes every application program and utility. A policy decision subsystem determines a filtering policy, an intrusion detection policy and an access control policy. An authentication and ...

Internet of things **security** analysis

Google Scholar · ieeexplore.ieee.org · Gan G · 2011 International conference on internet technology and applications
Published 2011
Similar ... by attackers, Trojan attacks, virus damage, keys decryption, DOS, eavesdropping and **traffic** analysis are ... not hide the message's source and destination, which is easy attacked by **malicious** access cause ... The **security** issues of data transmission and **information** in sensor network ..

Security system for network information and method thereof

KR · KR20050053477A · 백남준 · 백남준
Priority 2003-12-22 · Filed 2003-12-22 · Published 2005-06-08
Similar The present invention relates to a security system that can control the transmission of network information from the internal network to the external network. The security system includes a host information database for recording and storing MAC and IP addresses of each host constituting the ...

System and method for detecting abnormal traffic based on early notification



WO EP US CN JP · EP1905213B1 · Jean-Marc Robert · Alcatel
Priority 2005-07-08 · Filed 2006-07-04 · Granted 2012-09-05 · Published 2012-09-05
Similar A method of detecting abnormal traffic at a node of a communications network equipped with an intrusion detection/prevention system, called IDS/IPS, comprising the steps of: monitoring (S3) the status of a traffic flow input to said node to establish if said traffic flow carries suspicious data ...

Attacks on Computer Network and Corresponding **Security** Measures

Google Scholar · search.proquest.com · Purundkar G · International Journal of Advanced Research in Computer Science
Published 2010
... This prevents a network from accepting and using unauthorized, **malicious**, or corrupted networking updates that ... This is effective to **detect** known attacks but generally is very difficult for detecting ... Impact of MD5 Authentication on Routing **Traffic** for the Case of: EIGRP, RIPv2 and ...

Securing enterprise mobile **information**

Google Scholar · ieeexplore.ieee.org · Copeland W · 2012 International Symposium on Computer, Consumer and Control
Published 2012
Similar ... **Traffic** load analysis is detecting peaks against a standard baseline ... Several tools can be purchased to **detect** any attempt to subvert the normal activity of the ... To prevent **malicious** programs from spreading to mobile devices, employees should delete any messages received on ...

A Study of Different Intrusion Detection and Prevension System

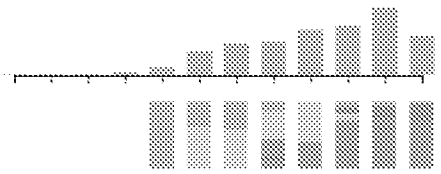
Google Scholar · www.researchgate.net · Mittal M · International Journal of Scientific & Engineering Research

Keysight Technologies Ex. 1002
Page 83 of 401

Published 2013
Similar ... NBA has capability to **detect** several types of **malicious** activi- ties and generate an alarm to an ... tion is usually used by the administrator manually for essen- tial signature to **detect** or prevent ... the **traffic** of the network directly , some sensors do not monitor the **traffic** directly instead ...

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Relative count of top 5 values

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Sophos Limited		1.4%
Zscaler, Inc.		0.6%
한국전자통신연구원		0.5%
Palo Alto Networks, Inc.		0.4%
Cisco Technology, Inc		0.4%

Expand

Keysight Technologies Ex. 1002
Page 84 of 401

Huang, Cheng-Feng

From: Kirk Sigmon <KSigmon@bannerwitcoff.com>
Sent: Thursday, January 7, 2021 12:51 PM
To: Huang, Cheng-Feng
Subject: USAN 17/027,436 - Acceptance of Proposed Examiner's Amendment - Firm Ref. 007742.00188
Attachments: USAN 17_027,436 Proposed Examiner_s Amendment of 01.06.2021.DOCX

Follow Up Flag: Follow up
Due By: Thursday, January 7, 2021 4:00 PM
Flag Status: Flagged

Hi Examiner Huang,

Thank you for your call yesterday! We have conferred with our client, and they are willing to accept your proposal to roll claims 33 and 34 into the independent claims. Please find enclosed claim amendments on that basis. Our acceptance of these amendments is conditioned on the application being allowed in its entirety.

Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned and practitioners in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via video conferencing, instant messaging, or electronic mail. I understand that a copy of these communications will be made of record in the application file. (MPEP 502.03)

Thank you,
Kirk

KIRK SIGMON | ATTORNEY

BANNER WITCOFF
1100 13th Street NW, Suite 1200
Washington, DC 20005

TEL: 202.824.3146 | MAIN: 202.824.3000
bannerwitcoff.com | ksigmon@bannerwitcoff.com

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/027,436	09/21/2020	Steven Rogers	007742.00188\US

CONFIRMATION NO. 7579

PUBLICATION NOTICE

22907
BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

OC000000122673508

Title: Methods and Systems for Protecting a Secured Network

Publication No.US-2021-0014277-A1
Publication Date:01/14/2021

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The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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(Not for submission under 37 CFR 1.99)

Application Number	17027436
Filing Date	2020-09-21
First Named Inventor	Steven Rogers
Art Unit	2497
Examiner Name	C. Huang
Attorney Docket Number	007742.00188\US

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	Filing Date	2020-09-21
	First Named Inventor	Steven Rogers
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	Examiner Name	C. Huang
	Attorney Docket Number	007742.00188\US

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	Examiner Name	C. Huang
	Attorney Docket Number	007742.00188\US

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	14	Part 3 Attachment in German Nullity Action in EP3132587 date unknown.	
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	Filing Date	2020-09-21
	First Named Inventor	Steven Rogers
	Art Unit	2497
	Examiner Name	C. Huang
	Attorney Docket Number	007742.00188\US

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.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

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	/Kirk A. Sigmon/	Date (YYYY-MM-DD)	2021-01-07
Name/Print	Kirk A. Sigmon	Registration Number	76,326

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.**

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:

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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.

Docket No.: 007742.00188\US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Steven Rogers et al.

Application No.: 17/027,436 Confirmation No.: 7579

Filed: September 21, 2020 Art Unit: 2497

For: Methods and Systems for Protecting a Secured Network Examiner: C. Huang

TRANSMITTAL LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

The documents cited in the Information Disclosure Statement simultaneously filed with this Letter are cited in a German Nullity Action in EP3132587, which is related to the present case.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 19-0733, under Order No. 007742.00188\US from which the undersigned is authorized to draw.

Dated: January 7, 2021

Respectfully submitted,

By: */Kirk A. Sigmon/*
Kirk A. Sigmon
Registration No.: 76,326

BANNER & WITCOFF, LTD.
1100 13th St. NW
STE 1200
Washington, DC 20005
(202) 824-3000

Electronic Patent Application Fee Transmittal

Application Number:	17027436
Filing Date:	21-Sep-2020
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Filer:	Kirk Allen Sigmon/Jessica Williams
Attorney Docket Number:	007742.00188\US

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	130	130
		Total in USD ($)		**130**

Electronic Acknowledgement Receipt

EFS ID:	41587597
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/Jessica Williams
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	07-JAN-2021
Filing Date:	21-SEP-2020
Time Stamp:	18:38:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$130
RAM confirmation Number	E202117I38479428
Deposit Account	190733
Authorized User	Jessica Williams

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP2944065_NPL_attach1_20925352.PDF	1093620 ce36a634d79e5523f91ac8b1f9a18d30be305881	no	6
Warnings:					
Information:					
2	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP2944065_NPL_attach2_20925353.PDF	4138801 41bc4f9f18fab5797341b7fe7500152b39879415	no	8
Warnings:					
Information:					
3	Non Patent Literature	Attachment_2_20946200.PDF	15639285 fa33cf977f6136f85dcfe3ed99585e24f423f88a	no	50
Warnings:					
Information:					
4	Non Patent Literature	Attachment_3_20946175.PDF	344339 5c6a4e3c8512afa63f17d871441e160367b5ba90	no	3
Warnings:					
Information:					
5	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP3132587_NPL_attach4_20925356.PDF	9493882 b2fa133ee70dea68b108c337b5f86420c9f232ca	no	30
Warnings:					
Information:					
6	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP3132587_NPL_attach5_20925357.PDF	4331855 6ae3ac84b6d5348b052eb3483cfca427793f126b	no	14
Warnings:					
Information:					

7	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP3132587_NPL_attach6_20925358.PDF	377030 2003c737c596d2377dcfb92d0687a90b22d00474	no	2
Warnings:					
Information:					
8	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP3132587_NPL_attach7_20925359.PDF	11836577 da812ad359cefe05f478d8e3c25cdacd5cc2f9fd	no	38
Warnings:					
Information:					
9	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP3132587_NPL_attach8_20925360.PDF	2854857 5f7739c30860d18780a470d487210452da29f66e	no	8
Warnings:					
Information:					
10	Non Patent Literature	Part_1_20946206.PDF	1704712 28e5953696402e154eb1ecda15d39ae836a3478a	no	9
Warnings:					
Information:					
11	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP3132587_NPL_attach9_20925361.PDF	13244974 1b12000bc2a72ecddf10f05a3dd146a66248a2a9	no	36
Warnings:					
Information:					
12	Non Patent Literature	Cisco_vs_Centripetal_nullity_suit_EP3132587_NPL_attach10_20925362.PDF	395621 981ff6bf059c91f7c3b1a96ea36da78e1cbef4ae	no	2
Warnings:					
Information:					
13	Non Patent Literature	Part_2_20946191.PDF	4929174 3fbf4b10b1a12f6ce01d156f9b566551b1ebbed9	no	20
Warnings:					
Information:					

14	Non Patent Literature	Part_3_20946213.PDF	9775824 090eea40e66398fa30bcc0d8adc8a1a47666432e	no	30
Warnings:					
Information:					
15	Non Patent Literature	Part_4_20946186.PDF	12392644 a66a908e3cfbcf0ddd91fcb980c33ada5ec81590	no	39
Warnings:					
Information:					
16	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF2_20946506.pdf	1034618 c4804b4bde558d6bea2fb8c087514f385721fc1e	no	5
Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
17	Transmittal Letter	774200188transmittal_20946857.pdf	106040 9094d0efd4c4a54ce54e36ac7191e51c41a26591	no	1
Warnings:					
Information:					
18	Fee Worksheet (SB06)	fee-info.pdf	30616 8a562edb1323beffdbe0e02683035bbf345bb885	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	93724469		

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.

Docket No.: 007742.00188\US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Steven Rogers

Application No.: 17/027,436	Confirmation No.: 7579
Filed: Sept. 21, 2020	Art Unit: 2497
For: Methods and Systems for Protecting a Secured Network	Examiner: C. Huang

AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION UNDER 37 C.F.R. § 1.111

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

INTRODUCTORY COMMENTS

In response to the Office Action dated November 25, 2020, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the Listing of Claims beginning on page 1.

Remarks begin on page 13.

Applicant hereby petitions for any extension to the time period for reply that may be necessary, and the Commissioner is hereby authorized to charge any required fees or credit any overpayment of fees to Deposit Account No. 19-0733.

LISTING OF THE CLAIMS

1. (Currently Amended) A method of filtering packets at a packet security gateway configured for protection of a network, wherein the packet security gateway is capable of receiving a plurality of dynamic security policies and is associated with a security policy management server external from the network, the method comprising:

receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, ~~wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and~~ wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

performing, based on the packet filtering rules, packet filtering on individual packets of ~~the~~ a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on ~~the~~ content determined from the inspection of that individual packet.

2. (Original) The method of claim 1, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

3. (Original) The method of claim 1, wherein at least one packet transformation function comprises a network protection action.

4. (Original) The method of claim 1, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the method further comprises:

sending, by the packet security gateway, the first plurality of packets in the first forwarding queue; and

sending, by the packet security gateway, the second plurality of packets in the second forwarding queue.

5. (Original) The method of claim 1, further comprising:

receiving, by the packet security gateway and using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

performing at least one packet transformation function at the network layer.

6. (Original) The method of claim 1, wherein the packet security gateway is a LAN switch.

7. (Original) The method of claim 1, wherein the filtering each packet comprises:

filtering one packet at a time; and

performing a packet digest logging function with respect to each filtered packet.

8. (Original) The method of claim 7, wherein, the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

9. (Currently Amended) A packet security gateway configured for protection of a network, capable of receiving a plurality of dynamic security policies and associated with a security policy management server external from the network, the packet security gateway comprising:

at least one processor; and

memory comprising instructions that, when executed by the last least one processor, cause the packet security gateway to:

receive, from the security policy management server, a dynamic security policy comprising packet filtering rules, ~~wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and~~ wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

perform, based on the packet filtering rules, packet filtering on individual packets of ~~the~~ a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on ~~the~~ content determined from the inspection of that individual packet.

10. (Currently Amended) The packet security gateway of claim ~~6~~9, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

11. (Currently Amended) The packet security gateway of claim ~~6~~9, wherein at least one packet transformation function comprises a network protection action.

12. (Currently Amended) The packet security gateway of claim ~~6~~9, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

13. (Currently Amended) The packet security gateway of claim ~~6~~9, wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

perform at least one packet transformation function at the network layer.

14. (Currently Amended) The packet security gateway of claim ~~6~~9, wherein the packet security gateway is a LAN switch.

15. (Currently Amended) The packet security gateway of claim ~~6~~9, wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

16. (Original) The packet security gateway of claim 15, wherein the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

17. (Currently Amended) One or more non-transitory computer-readable media comprising instructions that, when executed by one or more processors of a packet security gateway configured to protect a network, cause the packet security gateway to:

receive, from ~~the~~ a security policy management server, a dynamic security policy comprising packet filtering rules, ~~wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and~~ wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, and wherein a first packet matching rule of the packet filtering rules comprises:

at least one packet matching criterion,

a corresponding packet transformation function, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services; and

perform, based on the packet filtering rules, packet filtering on individual packets of ~~the~~ a ~~first~~ plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on ~~the~~ content determined from the inspection of that individual packet.

18. (Original) The one or more non-transitory computer-readable media of claim 17, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

19. (Original) The one or more non-transitory computer-readable media of claim 17, wherein at least one packet transformation function comprises a network protection action.

20. (Currently Amended) The one or more non-transitory computer-readable media of claim 17, wherein the ~~first~~ dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

21. (Original) The one or more non-transitory computer-readable media of claim 17, wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

perform at least one packet transformation function at the network layer.

22. (Original) The one or more non-transitory computer-readable media of claim 17, wherein the packet security gateway is a LAN switch.

23. (Original) The one or more non-transitory computer-readable media of claim 17, wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

24. (Original) The one or more non-transitory computer-readable media of claim 23, wherein the packet digest logging function comprises:

identifying a subset of information in the packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

25. (Currently Amended) A system comprising:

a security policy management server external from a network associated with a packet security gateway, wherein the security policy management server comprises:

one or more first processors; and

first memory storing first instructions that, when executed by one or more first processors, cause the security policy management server to:

receive, from a plurality of malicious host tracker services, first malicious traffic information;

automatically create, based on the first malicious traffic information, a dynamic security policy or patent filtering rules of the dynamic security policy, wherein a first packet filtering rule of the patent filtering rules comprise:

one or more packet matching criteria comprising a corresponding network addresses ~~and~~,

one or more corresponding packet transformation functions, and

an indication of a feed managed by at least one of the plurality of malicious host tracker services;

~~a~~ the packet security gateway, wherein the packet security gateway is configured for protection of a network and associated with the security policy management server external from the network, the packet security gateway comprising:

one or more second processors; and

second memory storing second instructions that, when executed by one or more second processors, cause the packet security gateway to:

receive, from the security policy management server, the dynamic security policy comprising the packet filtering rules~~, wherein the first packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service~~; and

perform, based on the packet filtering rules, packet filtering on individual packets of ~~the~~ a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on ~~the~~ content determined from the inspection of that individual packet.

26. (Original) The system of claim 25, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

27. (Original) The system of claim 25, wherein at least one packet transformation function comprises a network protection action.

28. (Original) The system of claim 25, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the second instructions, when executed by the one or more second processors, further cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

29. (Original) The system of claim 25, wherein the second instructions, when executed by the one or more second processors, further cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

performing at least one packet transformation function at the network layer.

30. (Original) The system of claim 25, wherein the packet security gateway is a LAN switch.

31. (Original) The system of claim 25, wherein the second instructions, when executed by the one or more second processors, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

32. (Original) The system of claim 31, wherein, the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

33. (Currently Amended) The system of claim 25, wherein at least two of the plurality of malicious host tracker services are managed by different organizations~~the first instructions, when executed by the one or more first processors, cause the security policy management server to receive malicious traffic information from more than one host tracker service~~.

34. (Currently Amended) The system of claim 25, wherein the first instructions, when executed by the one or more first processors, cause the security policy management server to:

add, remove or alter the one or more rules of the ~~first or second~~ dynamic security policy based, at least in part, on making a correlation between the malicious traffic information received from ~~the~~ the plurality of malicious host tracker services~~different host tracker services~~.

35. (Original) The system of claim 25, wherein at least one packet transformation function is configured to route associated packets to a monitoring device.

REMARKS

The Non-Final Office Action, dated November 25, 2020, (the "Action") has been carefully reviewed and these remarks are responsive thereto. Claims 1, 9–15, 17, 20, 25, 33, and 34 have been amended. No new matter has been added. Claims 1–35 are therefore pending, with claims 1, 9, 17, and 25 being independent. Entry of these amendments is respectfully requested, and reconsideration and allowance of the instant application are respectfully requested.

ALLOWABLE SUBJECT MATTER

Applicant thanks the Office for the indication that claims 8, 16, 24, and 32 would be alowable if rewritten in independent form (and if the double patenting rejection, addressed below, was addressed).

CLAIM OBJECTIONS

Claims 10–15 and 25 stand objected to for various informalities. Applicant thanks the Office for the indication of these typograhical errors, and has amended the claims to correct them.

DOUBLE PATENTING

Claims 1–35 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over U.S. Pat. No. 10,749,906 and U.S. Pat. App. No. 16/909,327.

Without conceding the merit of this rejection, Applicant will submit a terminal disclaimer over U.S. Pat. No. 10,749,906 and U.S. Pat. App. No. 16/909,327. In view of the filing of that terminal disclaimer, Applicant submits that the rejection is thereby mooted.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 1–3, 6–7, 9–11, 14–15, 17–19, 22–23, 25–27, 30–31, and 33–35 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Pat. Pub. No. 2012/0304244 to Xie *et al.* ("Xie") and U.S. Pat. Pub. No. 2004/0172557 to Nakae *et al.* ("Nakae").

Claims 4, 12, 20, and 28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Xie, Nakae, and U.S. Pat. Pub. No. 2009/0300759 to Wang *et al.* ("Wang").

Claims 5, 13, 21, and 29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Xie, Nakae, and U.S. Pat. Pub. No. 2005/0138204 to Iyer *et al.* ("Iyer").

Applicant respectfully traverses these references for at least the following reasons.

Claim 1 has been amended to recite:

> *receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, and wherein a first packet matching rule of the packet filtering rules comprises:*
>
> *at least one packet matching criterion,*
>
> *a corresponding packet transformation function, and*
>
> *an indication of a feed managed by at least one of the plurality of malicious host tracker services; and*
>
> *performing, based on the packet filtering rules, packet filtering on individual packets of a plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:*
>
> *inspecting individual packets; and*
>
> *filtering each packet based on content determined from the inspection of that individual packet.*

Claims 9, 17, and 25, while different, have been similarly amended. None of the cited references teach, disclose, or otherwise suggest at least these features.

Xie does not teach, disclose, or otherwise suggest "*receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a plurality of malicious host tracker services, and wherein a first packet matching rule of the packet filtering rules comprises: at least one packet matching criterion, a corresponding packet transformation function, and an indication of a feed managed by at least one of the plurality of malicious host tracker services*." Xie describes a "malware analysis system for detecting malware for which existing signatures do not detect (e.g., which can then effectively prevent new zero-day exploits)." (Xie, para. 0025). For example, in Xie, a "firewall 212 can send potential malware samples for which no preexisting signatures match to the VM appliance/server 216 for further analysis using the techniques described herein." (*Id.,* para. 0042). Then, "[i]f he potential malware sample is determined to be malware, then the VM appliance server 216 (e.g., or another function/device) can automatically generate a new signature for the malware, which can then be sent to the firewall 212 for updating the signature/data and/or rules/policies of the firewall 212 so that the malware can be detected and appropriate actions taken by the firewall 212, such as to block the malware." (*Id.*). As such, Xie describes causing a virtual machine to generate a signature of malware to update rules/policies of a firewall. But Xie does not teach that "*a first packet matching rule of the packet filtering rules comprises: at least one packet matching criterion, a corresponding packet transformation function, and an indication of a feed managed by at least one of the plurality of malicious host tracker services*." Indeed, along these lines, the Action, on page 12, concedes that Xie does not teach the formerly-recited "wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function."

Nakae does not remedy these deficiencies. Nakae describes an "an attack defending system and an attack defending method as well as a firewall unit, which allow effective defense against

attacks from external networks even when a communication system uses a communication path encryption technique." (Nakae, para. 0018). The "attack detecting system" comprises a "firewall device" which "receives an attack detection alert from the at least one attack detecting system and transforms it to an alert including at least an attack-source IP address and an attack-target IP address." (*Id.*, para. 0029). Such a firewall device may use "access control rules," and "[e]ach access control rule is composed of a combination of rule matching conditions including a source IP address (SRC) and a destination IP address (DST), and an identifier denoting a predetermined processing method (PROC) such as acceptance (ACCEPT), denial (DENY) and dropping (DROP) of a packet." (*Id.*, para. 0114). But Nakae does not teach, disclose, or otherwise suggest "*a plurality of malicious host tracker services*" in the first place, let alone that the "*a first packet matching rule of the packet filtering rules comprises: at least one packet matching criterion, a corresponding packet transformation function, and an indication of a feed managed by at least one of the plurality of malicious host tracker services*."

None of the other references remedy these deficiencies. For example, neither Wang nor Iyer disclose "*a plurality of malicious host tracker services*" in the first place, let alone that the "*a first packet matching rule of the packet filtering rules comprises: at least one packet matching criterion, a corresponding packet transformation function, and an indication of a feed managed by at least one of the plurality of malicious host tracker services*."

Accordingly, claim 1 is in a condition for allowance. Claims 9, 17, and 25, while different, have been similarly amended, and are allowable for similar reasons. Claims 2–8, 10–16, 18–24, and 26–35 depend from claims 1, 9, 17, and 25, and are allowable due to their dependency as well as because of their respective novel features.

CONCLUSION

All issues having been addressed, Applicant respectfully submits that the instant application is in condition for allowance, and respectfully solicits prompt notification of the same. However, if for any reason the Examiner believes the application is not in condition for allowance or there are any questions, the Examiner is requested to contact the undersigned at 202-824-3146.

Dated: Dec. 18, 2020

Respectfully submitted,

By: */Kirk A. Sigmon/*
Kirk A. Sigmon
Registration No.: 76,326

BANNER & WITCOFF, LTD.
1100 13th St. NW
STE 1200
Washington, DC 20005
(202) 824-3000

Electronic Acknowledgement Receipt

EFS ID:	41430060
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/Jessica Williams
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	18-DEC-2020
Filing Date:	21-SEP-2020
Time Stamp:	12:37:49
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		774200188amendment_20916724.pdf	160653 5a82256adbfb2c30902be997242848bb8f992859	yes	17

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	12
	Applicant Arguments/Remarks Made in an Amendment	13	17
Warnings:			
Information:			
	Total Files Size (in bytes):	160653	

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.

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed	PTO/SB/25 PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION AND TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	17027436
Filing Date	21-Sep-2020
First Named Inventor	Steven Rogers
Attorney Docket Number	007742.00188\US
Title of Invention	Methods and Systems for Protecting a Secured Network

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Centripetal Networks, Inc.	100 %

The owner(s) of percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number(s)

16909327 filed on 06/23/2020

as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that any such patent granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

(●) Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

( ) I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicants claims the following fee status:

(●) Small Entity

( ) Micro Entity

( ) Regular Undiscounted

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.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

(●) An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 76326

( ) A sole inventor

( ) A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

( ) A joint inventor; all of whom are signing this request

Signature	/Kirk A. Sigmon/
Name	Kirk A. Sigmon

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	17027436
Filing Date:	21-Sep-2020
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Filer:	Kirk Allen Sigmon/Jessica Williams
Attorney Docket Number:	007742.00188\US

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	170	170
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**170**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 17027436

Filing Date: 21-Sep-2020

Applicant/Patent under Reexamination: Rogers

Electronic Terminal Disclaimer filed on December 18, 2020

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	41429928
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/Jessica Williams
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	18-DEC-2020
Filing Date:	21-SEP-2020
Time Stamp:	12:34:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$170
RAM confirmation Number	E2020BHC34205390
Deposit Account	190733
Authorized User	Jessica Williams

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	35977 6d5104d5db694c400345936ad66808c1ce1251d1	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30598 0e8c8eeb93b4adf3d7f3433dcb6c8f44eeec5056	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	66575		

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.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. 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 17/027,436	Filing Date 09/21/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 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	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/18/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 35	Minus	** 35	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ZETA T ADAMS/
*** 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.	

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.

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/027,436	09/21/2020	Steven Rogers	007742.00188\US	7579

22907 7590 11/25/2020

BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

EXAMINER
HUANG, CHENG-FENG

ART UNIT	PAPER NUMBER
2497	

NOTIFICATION DATE	DELIVERY MODE
11/25/2020	ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

GPD@bannerwitcoff.com
eofficeaction@bannerwitcoff.com

Office Action Summary	Application No. 17/027,436	Applicant(s) Rogers et al.	
	Examiner CHENG-FENG HUANG	Art Unit 2497	AIA (FITF) Status Yes

-- 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 MONTHS 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 09/21/2020.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ 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*

5) ☑ Claim(s) 1-35 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-35 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

11)☑ The drawing(s) filed on 09/21/2020 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).

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).

Certified copies:

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)).

** 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) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

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

4) ☐ Other: _____.

DETAILED ACTION

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

2. This is a reply to the application filed on 09/21/2020, in which, claim(s) 1-35 are pending. Claim(s) 1, 9, 17 and 25 are independent.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 09/21/2020, 09/21/2020, 09/21/2020, 09/21/2020, 09/21/2020, and 10/12/2020, has been reviewed. The submission fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

4. The drawings filed on 09/21/2020 are accepted by The Examiner.

Examiner's Note

5. Claim 9 recites "*A packet security gateway…comprising: … instructions that, when executed by the last least one processor*" and claim 25 recites "*A system comprising: … instructions that, when executed by the last least one processors*". Claims 9 and 25 have been analyzed for 35 USC 101. No 35 USC 101 deemed

necessary since the processor is interpreted as hardware processor in order to "execute" instructions. Therefore the examiner has viewed the gateway and the system as meeting 35 U.S.C. 101 eligibility requirements.

Claim Objections

6. Claims 10-15, and 25 are objected to because of the following informalities:

- Claims 10-15 recite "*The packet security gateway of claim 6*" which should be "*The packet security gateway of claim 9*" since claim 6 is a method claim.
- Claim 25 (lines 10-11) recites "***patent*** *filtering rules*" which should be "*packet filtering rules*" to correct the typo.
- Claim 25 (line 9) recites "*based on the malicious traffic information*" which should be "*based on the first malicious traffic information*" since the term "first malicious traffic information" is previously mentioned in the claim.
- Claim 25 (line 26) recites "*based on malicious traffic information*" which should be "*based on the first malicious traffic information*" since the term "first malicious traffic information" is previously mentioned in the claim.
- Claim 25 (line 26) recites "*a malicious host tracker service*" which should be "*the malicious host tracker service*" since the term "malicious host tracker service" is previously mentioned in the claim.

Appropriate correction is required.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all

requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

8. Claims 1-35 are non-provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over:

Claims 1-17 of Patent 10,749,906.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-35 are anticipated by claims 1-17 of Patent 10,749,906.

Patent No. US 10,749,906 (16/448,969)	Instant Application No.(17/027,436)
Claim 1. A method of filtering packets at a packet security gateway configured for protection of a network and associated with a security policy management server external from the network, the method comprising:	Claim 1. A method of filtering packets at a packet security gateway configured for protection of a network, wherein the packet security gateway is capable of receiving a plurality of dynamic security policies and is associated with a security policy management server external from the network, the method comprising:
receiving, by the packet security gateway, a dynamic security policy comprising a first set of packet filtering rules from the security policy management server, wherein each packet filtering rule of the first set of packet filtering rules comprises at least one packet matching criterion and a corresponding packet transformation function, and wherein one or more first packet filtering rules of the first set of	receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and wherein one or both of the dynamic security policy or one or more of

packet filtering rules were automatically created or altered by the security policy management server based on malicious traffic information received from a malicious host tracker service;	the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service; and
performing, on a packet by packet basis, packet filtering on a first portion of packets associated with the network protected by the packet security gateway based on the first set of packet filtering rules by performing at least one of multiple packet transformation functions specified by at least one packet filtering rule of the first set of packet filtering rules on the first portion of packets, wherein at least one of the multiple packet transformation functions specified by the at least one packet filtering rule of the first set of packet filtering rules corresponds to a packet digest logging function that supports a network communications awareness service and comprises:	performing, based on the packet filtering rules, packet filtering on individual packets of the plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:
identifying a subset of information specified by a packet matching the packet matching criterion of a packet filtering rule that specified the packet digest logging function;	inspecting individual packets; and
generating a record comprising the subset of information specified by the packet; reformatting the subset of information specified by the packet in accordance with a logging system standard; and routing, by the packet security gateway, the packet to a monitoring device; receiving, by the packet security gateway and after performing packet filtering on the first	filtering each packet based on the content determined from the inspection of that individual packet.

portion of the packets, an updated second set of packet filtering rules for the dynamic security policy from the security policy management server, wherein the updated second set of packet filtering rules comprises an update to the first set of packet filtering rules and was generated by the security policy management server based on updated malicious traffic information received from the malicious host tracker service; and performing, on a packet by packet basis, packet filtering on a second portion of the packets associated with the network protected by the packet security gateway based on the updated second set of packet filtering rules.	

9. Claims 1-35 are non-provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over:

Claims 1-14 of Patent application No. 16/909,327 .

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-35 are anticipated by claims 1-14 of Patent application No. 16/909,327.

Patent application No. 16/909,327	Instant Application No.(17/027,436)
Claim 1. A method of filtering packets at a packet security gateway that provides an interface across a boundary of a network protected by the packet security gateway and one or more networks other than the network	Claim 1. A method of filtering packets at a packet security gateway configured for protection of a network, wherein the packet security gateway is capable of receiving a plurality of dynamic security policies and is

protected by the packet security gateway, the method comprising:	associated with a security policy management server external from the network, the method comprising:
receiving, by the packet security gateway and from a security policy management server located in the one or more networks other than the network protected by the packet security gateway, a dynamic security policy comprising a first set of packet filtering rules to be applied to all network traffic traversing the boundary via the packet security gateway, wherein one or more first packet filtering rules of the first set of packet filtering rules were automatically created by the security policy management server based on malicious traffic information received from one or more malicious host tracker services, and wherein each packet filtering rule of the first set of packet filtering rules comprises: at least one packet matching criterion, one or more corresponding packet transformation functions, and metadata indicating at least one malicious host tracker service, of the one or more malicious host tracker services, corresponding to the respective packet filtering rule, wherein the metadata comprises an identification of a feed managed by the at least one malicious host tracker service that provides network addresses of malicious hosts;	receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service; and
configuring, based on the first set of packet filtering rules, the packet security gateway;	

performing packet filtering on a first portion of packets associated with the network protected by the packet security gateway based on the first set of packet filtering rules by performing at least one of multiple packet transformation functions specified by one or more packet filtering rules of the first set of packet filtering rules on the first portion of packets, wherein the at least one of the multiple packet transformation functions specified by the one or more packet filtering rules of the first set of packet filtering rules corresponds to a packet digest logging function that supports a network communications awareness service and comprises generating a record comprising: first data, from a packet, that matches first packet matching criterion of a packet filtering rule, wherein the packet filtering rule corresponds to the packet digest logging function; and second data that comprises: the first packet matching criterion, the one or more corresponding packet transformation functions, and the metadata indicating the at least one malicious host tracker service corresponding to the respective packet filtering rule, wherein the network communications awareness service is provided based on one or more criteria that are indicative of packet communications that are of interest to an organization that operates the network; reformatting, in accordance with a logging system standard, the record; and forwarding, by the packet security gateway and to the network	performing, based on the packet filtering rules, packet filtering on individual packets of the plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises: inspecting individual packets; and filtering each packet based on the content determined from the inspection of that individual packet.

communications awareness service, the reformatted record.	

Claim Rejections - 35 USC § 103

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

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102 of this title, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

11. Claims 1-3, 6-7, 9-11, 14-15, 17-19, 22-23, 25-27, 30-31 and 33-35 are rejected under 35 U.S.C. 103 as being unpatentable over Xie et al. (US 2012/0304244 A1) in view of Nakae et al. (US 2004/0172557 A1, as cited by the applicant in the 09/21/2020 IDS).

12. Regarding Claims 1, 9, and 17, Xie discloses ***A method of filtering packets at a packet security gateway configured for protection of a network, wherein the packet security gateway is capable of receiving a plurality of dynamic security policies and is associated with a security policy management server external from the network*** ([0041], “FIG. 2 is a block diagram illustrating an architecture for a

malware analysis system", "the security device 202 includes … a gateway", [0042], "As also shown in FIG. 2, a Virtual Machine (VM) appliance/server 216 is provided", as the security policy management server external from the network)***, the method comprising***:

receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, and wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service ([0042], "the VM appliance server 216 (i.e. the security policy management server) can automatically generate a new signature for the malware, which can then be sent to the firewall 212 for updating the signature/data and/or rules/policies of the firewall 212", based on the malicious host tracker service described in [0025], "a malware analysis system for detecting malware for which existing signatures do not detect", and [0027], "a host-based firewall executed on a first device", "decrypts a network traffic flow to generate the potential malware sample for analysis"); ***and***

performing, based on the packet filtering rules, packet filtering on individual packets of the plurality of packets associated with the network protected by the packet security gateway ([0017], "filter inbound traffic by applying a set of rules or policies", [0018], "A basic packet filtering firewall filters network communication traffic", "")***, wherein the packet filtering comprises***:

inspecting individual packets ([0018], "inspecting individual packets transmitted over a network"); ***and***

filtering each packet based on the content determined from the inspection of that individual packet ([0018], "filters network communication traffic", "apply rules based on the inspected packets").

Xie does not explicitly teach but Nakae teaches ***wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function*** ([0113], "retrieves a corresponding access control rule from the access control list database 1021 and returns it to the packet filter", [0114], "Each access control rule is composed of a combination of rule matching conditions including a source IP address (SRC) and a destination IP address (DST)", [0029], "transforms it to an alert including at least an attack-source IP address and an attack-target IP address").

Xie and Nakae are analogous art as they are in the same field of endeavor of information security. It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have a packet security gateway configured for protection of a network with a dynamic security policy comprising packet filtering rules (as disclosed by Xie) wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function (as taught by Nakae). The motivation/suggestion would have been to allow effective defense against attacks from external networks (Nakae, Abstract).

13. Regarding Claims 2, 10, 18, and 26, the combined teaching of Xie and Nakae teaches ***wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic*** (Nakae, [0114], "rule matching conditions including a source IP address (SRC) and a destination IP address (DST)", as an indication of malicious network traffic).

14. Regarding Claims 3, 11, 19, and 27, the combined teaching of Xie and Nakae teaches ***wherein at least one packet transformation function comprises a network protection action*** (Nakae, [0029], "transforms it to an alert including at least an attack-source IP address and an attack-target IP address", as the network protection action).

15. Regarding Claims 6, 14, 22, and 30, the combined teaching of Xie and Nakae teaches ***wherein the packet security gateway is a LAN switch*** (Nakae, [0523], "FIG. 60…a (LAN) switch 7002").

16. Regarding Claims 7, 15, 23, and 31, the combined teaching of Xie and Nakae teaches ***filtering one packet at a time; and performing a packet digest logging function with respect to each filtered packet*** (Xie, [0018], "packet filtering firewalls typically inspect the individual packets (at a time) themselves and apply rules based on the inspected packets", [0059], "performing certain post analysis techniques using log information").

17. Regarding Claim 25, Xie discloses ***A system comprising***:

a security policy management server external from a network associated with a packet security gateway ([0041], "FIG. 2 is a block diagram illustrating an architecture for a malware analysis system", "the security device 202 includes ... a gateway", [0042], "As also shown in FIG. 2, a Virtual Machine (VM) appliance/server 216 is provided", as the security policy management server external from the network)***, wherein the security policy management server comprises***:

one or more first processors; and first memory storing first instructions that, when executed by one or more first processors ([0014], "a processor configured to execute instructions stored on and/or provided by a memory coupled to the processor")***, cause the security policy management server to***:

receive, from a malicious host tracker service, first malicious traffic information; automatically create, based on the malicious traffic information, a dynamic security policy or patent filtering rules of the dynamic security policy ([0042], "the VM appliance server 216 (i.e. the security policy management server) can automatically generate a new signature for the malware, which can then be sent to the firewall 212 for updating the signature/data and/or rules/policies of the firewall 212", based on the malicious host tracker service described in [0025], "a malware analysis system for detecting malware for which existing signatures do not detect", and [0027], "a host-based firewall executed on a first device", "decrypts a network traffic flow to generate the potential malware sample for analysis"),

a packet security gateway configured for protection of a network and associated with the security policy management server external from the network ([0041], "FIG. 2 is a block diagram illustrating an architecture for a malware analysis

system", "the security device 202 includes … a gateway", [0042], "As also shown in FIG. 2, a Virtual Machine (VM) appliance/server 216 is provided", as the security policy management server external from the network), ***the packet security gateway comprising: one or more second processors; and second memory storing second instructions that, when executed by one or more second processors*** ([0014], "a processor configured to execute instructions stored on and/or provided by a memory coupled to the processor")***, cause the packet security gateway to***:

receive, from the security policy management server, the dynamic security policy comprising the packet filtering rules, and wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service ([0042], "the VM appliance server 216 (i.e. the security policy management server) can automatically generate a new signature for the malware, which can then be sent to the firewall 212 for updating the signature/data and/or rules/policies of the firewall 212", based on the malicious host tracker service described in [0025], "a malware analysis system for detecting malware for which existing signatures do not detect", and [0027], "a host-based firewall executed on a first device", "decrypts a network traffic flow to generate the potential malware sample for analysis")***; and***

perform, based on the packet filtering rules, packet filtering on individual packets of the plurality of packets associated with the network protected by the packet security gateway ([0017], "filter inbound traffic by applying a set of rules or

policies", [0018], "A basic packet filtering firewall filters network communication traffic"), ***wherein the packet filtering comprises***:

inspecting individual packets ([0018], "inspecting individual packets transmitted over a network")***; and***

filtering each packet based on the content determined from the inspection of that individual packet ([0018], "filters network communication traffic", "apply rules based on the inspected packets").

Xie does not explicitly teach but Nakae teaches ***wherein the patent filtering rules comprise one or more packet matching criteria comprising a corresponding network addresses and one or more corresponding packet transformation functions*** ([0113], "retrieves a corresponding access control rule from the access control list database 1021 and returns it to the packet filter", [0114], "Each access control rule is composed of a combination of rule matching conditions including a source IP address (SRC) and a destination IP address (DST)", [0029], "transforms it to an alert including at least an attack-source IP address and an attack-target IP address");

wherein the first packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function ([0113], "retrieves a corresponding access control rule from the access control list database 1021 and returns it to the packet filter", [0114], "Each access control rule is composed of a combination of rule matching conditions including a source IP address (SRC) and a destination IP address (DST)", [0029], "transforms it to an alert including at least an attack-source IP address and an attack-target IP address").

Xie and Nakae are analogous art as they are in the same field of endeavor of information security. It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have a packet security gateway configured for protection of a network with a dynamic security policy comprising packet filtering rules (as disclosed by Xie) wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function (as taught by Nakae). The motivation/suggestion would have been to allow effective defense against attacks from external networks (Nakae, Abstract).

18. Regarding Claim 33, the combined teaching of Xie and Nakae teaches ***cause the security policy management server to receive malicious traffic information from more than one host tracker service*** (Xie, Fig. 2 shows multiple client devices 204 and management server 216, [0045], "host devices, such as the client devices and/or services, such as gateways or security servers, provide the potential malware samples to the VM function/device").

19. Regarding Claim 34, the combined teaching of Xie and Nakae teaches ***cause the security policy management server to: add, remove or alter the one or more rules of the first or second dynamic security policy based, at least in part, on making a correlation between the malicious traffic information received from the different host tracker services*** (Xie, [0031], "monitoring a plurality of network traffic flows", [0032], "automatically generating a signature if the potential malware sample is determined to be malware; adding a firewall rule that is based on the signature").

20. Regarding Claim 35, the combined teaching of Xie and Nakae teaches ***wherein at least one packet transformation function is configured to route associated packets to a monitoring device*** (Nakae, [0007], "in the traffic monitoring device, packets flowing on the internal network are monitored and an attack pattern matching a specific attack pattern is detected as an unauthorized packet, then, its identification information (including the source IP address and the destination IP address) is notified to the router").

21. Claims 4, 12, 20, and 28 are rejected under 35 U.S.C. 103 as being unpatentable over Xie et al. (US 2012/0304244 A1) in view of Nakae et al. (US 2004/0172557 A1, as cited by the applicant in the 09/21/2020 IDS) further in view of Wang et al. (US 2009/0300759 A1, as cited by the applicant in the 09/21/2020 IDS).

22. Regarding Claims 4, 12, 20, and 28, the combined teaching of Xie and Nakae does not explicitly teach but Wang teaches ***wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the method further comprises: sending, by the packet security gateway, the first plurality of packets in the first forwarding queue; and sending, by the packet security gateway, the second plurality of packets in the second forwarding queue*** ([0039], "to perform attack prevention while maintaining the high forwarding rates", [0049], "A forward counter is used to count

packets that are forwarded while rate-limiting of matching packets is in effect for the ACL for a particular port. The burst rate thresholds accessed in 302 may include a normal burst rate and a maximum burst rate associated with the ACL", [0063], "adds the information to the connection queue").

Xie, Nakae and Wang are analogous art as they are in the same field of endeavor of information security. It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to combine the teachings of Wang with the combined teaching of Xie and Nakae. The motivation/suggestion would have been for detecting and responding to attacks on computer systems and networks (Wang, [0002]).

23. Claims 5, 13, 21, and 29 are rejected under 35 U.S.C. 103 as being unpatentable over Xie et al. (US 2012/0304244 A1) in view of Nakae et al. (US 2004/0172557 A1, as cited by the applicant in the 09/21/2020 IDS) further in view of Iyer et al. (US 2005/0138204 A1, as cited by the applicant in the 09/21/2020 IDS).

24. Regarding Claims 5, 13, 21, and 29, the combined teaching of Xie and Nakae does not explicitly teach but Iyer teaches ***receiving, by the packet security gateway and using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and performing at least one packet transformation function at the network layer*** (Iyer, [0059], "The rules 238 may govern, among other things, VPN access permissions and security features such as the level of encryption and authentication used for the connectivity at the network layer", [0096], "routing protocols such as RIPv1 or RIPv2 running on the LAN interfaces learn

about the networks reachable through their respective interfaces", [0104], "Selection of the default rule invokes a graphical user interface").

Xie, Nakae and Iyer are analogous art as they are in the same field of endeavor of information security. It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to combine the teachings of Iyer with the combined teaching of Xie and Nakae. The motivation/suggestion would have been for providing efficient configuration, management, and updating of virtual private networks extending over remote sites across the Internet (Iyer, [0002]).

Allowable Subject Matter

25. Claims 8, 16, 24 and 32 are objected to as being dependent upon rejected base claims 1, 9, 17 and 25, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and also overcomes the double patenting rejection issued in this office action by filing a valid eTD.

Conclusion

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHENG-FENG HUANG whose telephone number is (571)272-6186. The examiner can normally be reached on Monday-Friday: 9 am - 5 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an

interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni A Shiferaw can be reached on (571) 272-3867. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/CHENG-FENG HUANG/
Examiner, Art Unit 2497

Notice of References Cited	Application/Control No. 17/027,436	Applicant(s)/Patent Under Reexamination Rogers et al.	
	Examiner CHENG-FENG HUANG	Art Unit 2497	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20060137009-A1	06-2006	Chesla; Avi	H04L63/1408	726/22
*	B	US-7607170-B2	10-2009	Chesla; Avi	H04L63/1408	709/224
*	C	US-7639714-B2	12-2009	Stolfo; Salvatore J.	G06F21/554	370/474
*	D	US-20120304244-A1	11-2012	Xie; Huagang	G06F21/53	726/1
*	E	US-20040172557-A1	09-2004	Nakae, Masayuki	H04L63/0263	726/22
*	F	US-20090300759-A1	12-2009	Wang; Sheng-Yih	H04L63/1458	726/22
*	G	US-20050138204-A1	06-2005	Iyer, Shanker V.	H04L63/164	709/242
	H					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
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	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.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	Art Unit
	CHENG-FENG HUANG	2497

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/18/2020								
	1	✓								
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	Art Unit
	CHENG-FENG HUANG	2497

CPC - Searched*		
Symbol	Date	Examiner
H04L63/20 or H04L63/0218 or H04L63/0263 or H04L67/02 or H04L63/1425 or H04L63/0209 or H04L63/0236 or H04L63/168	11/18/2020	C. H.

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

/CHENG-FENG HUANG/ Examiner, Art Unit 2497	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/027,436	Rogers et al.
	Examiner	Art Unit
	CHENG-FENG HUANG	2497

Search Notes		
Search Notes	**Date**	**Examiner**
EAST Searches (including inventor and asignee search)	11/18/2020	C. H.
EAST classification search (keywords combined with CPC)	11/18/2020	C. H.
NPL: detect malicious traffic information using dynamic security policy for network protection	11/18/2020	C. H.
IPR2018-01386 Reviewed Petition for Inter Partes Review ofUS Patent No. 9,565,213	11/19/2020	C. H.
IPR2018-01443 Reviewed Petition for Inter Partes Review ofUS Patent No. 9,137,205	11/19/2020	C. H.
IPR2018-01444 Reviewed Petition for Inter Partes Review ofUS Patent No. 9,137,205	11/19/2020	C. H.
IPR2018-01505 Reviewed Petition for Inter Partes Review ofUS Patent No. 9,137,205	11/20/2020	C. H.
IPR2018-01506 Reviewed Petition for Inter Partes Review ofUS Patent No. 9,137,205	11/20/2020	C. H.
IPR2018-01512 Reviewed Petition for Inter Partes Review ofUS Patent No. 9,565,213	11/20/2020	C. H.
IPR2018-01513 Reviewed Petition for Inter Partes Review ofUS Patent No. 9,560,077	11/20/2020	C. H.

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

/CHENG-FENG HUANG/ Examiner, Art Unit 2497	

Bibliographic Data

Application No: 17/027,436

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /CHENG-FENG HUANG/ Examiner's Signature | Initials

Title: Methods and Systems for Protecting a Secured Network

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/21/2020	726	2497	007742.00188\US
RULE			

APPLICANTS

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CONTINUING DATA

This application is a CON of 16909327 06/23/2020

This application is a CIP of 16728766 12/27/2019 PAT 10785266

16909327 is a CON of 16448969 06/21/2019 PAT 10749906

16448969 is a CON of 16158868 10/12/2018

16728766 is a CON of 16111524 08/24/2018 PAT 10567437

16111524 is a CON of 15413834 01/24/2017 PAT 10091246

16158868 is a CON of 15414117 01/24/2017 PAT 10142372

15413834 is a CON of 14698560 04/28/2015 PAT 9560077

15414117 is a DIV of 14253992 04/16/2014 PAT 9565213

14698560 is a CON of 13657010 10/22/2012 PAT 9137205

FOREIGN APPLICATIONS

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10/02/2020

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	"17027436"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/13 14:15
S3	1,060	((("ROGERS") near3 ("Steven")) OR (("MOORE") near3 ("Sean")) OR (("AHN") near3 ("David")) OR (("GEREMIA") near3 ("Peter"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2020/11/13 16:00
S4	186	((("CENTRIPETAL") near3 ("NETWORKS") near3 ("INC"))).AS,AANM.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/13 16:01
S5	1,163	S3 S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/13 16:01
S6	1,060	((("ROGERS") near3 ("Steven")) OR (("MOORE") near3 ("Sean")) OR (("AHN") near3 ("David")) OR (("GEREMIA") near3 ("Peter"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2020/11/14 10:04
S7	186	((("CENTRIPETAL") near3 ("NETWORKS") near3 ("INC"))).AS,AANM.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/14 10:04
S8	1,163	S6 S7	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/11/14 10:04

			DERWENT; IBM_TDB			
S9	49	S8 and (dynamic near security near policy)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/14 10:07
S10	48	S8 and (dynamic near security near policy) and (packet near transformation near function)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/14 10:08
S11	0	S10 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/14 10:10
S12	10	"13657010" "16728766" "16111524" "14698560"	US-PGPUB; USPAT	OR	ON	2020/11/14 10:44
S13	10	S12 and (dynamic near security near policy) and (packet near transformation near function)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/14 10:49
S14	5	S12 and ((dynamic near security near policy) and (packet near transformation near function)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/14 10:50
S15	106	(packet near transformation near function)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/14 11:47
S16	23	(packet near transformation near function).clm.	US-PGPUB; USPAT; USOCR;	OR	ON	2020/11/14 12:15

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S17	0	"17027436"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 09:46
S18	434	policy same (packet near2 filter$3 near2 rule)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 13:08
S19	23	S18 and match$3 with transform$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 13:10
S20	0	S19 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 13:10
S21	185,976	(H04L63/20 or H04L63/0218 or H04L63/0263 or H04L67/02 or H04L63/1425 or H04L63/0209 or H04L63/0236 or H04L63/168).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:40
S22	883	S21 and (packet near2 filter$3 near2 rule)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:40
S23	22	S22 and (malicious with track$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2020/11/18 14:43

			JPO; DERWENT; IBM_TDB			
S24	1	S23 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:43
S25	27	("20030188189" | "20040172557" | "20050015624" | "20050182969" | "20060080656" | "20070006303" | "20080010251" | "6826694" | "6928549" | "7032031").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:48
S26	4	("6161130").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:48
S27	17	("6778995" | "6820081" | "6888548" | "6978274" | "7035876" | "7080076").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:48
S28	3	("6856694").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:48
S29	51	S25 S26 S27 S28	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:48
S30	0	S29 and (malicious with track$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/11/18 14:49

			DERWENT; IBM_TDB			
S31	0	S29 and match$3 with transform$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:49
S32	1	S29 and (packet near2 filter$3 near2 rule)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:49
S33	65	(malicious with track$3) and match$3 with transform$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 14:56
S34	21	S33 and (packet with filter$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 15:09
S35	0	S34 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 15:09
S36	9	S33 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 15:10
S37	106	(packet near transformation near function)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/11/18 15:11

			DERWENT; IBM_TDB			
S38	35	S37 and ((new updated) with (rule policy ruleset))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 15:12
S39	0	S38 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 15:13
S40	9,496	(packet same filter$3 same inspect$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 19:28
S41	4,789	S40 and (protect$3 with network)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 19:29
S42	445	(malicious with track$3) and match$3 with (transform$5 or chang$3 or alter$3 or control$4 or temper$4 or construct$3 or re$1construct$4 or re$1buil$4 or buil$4 or regenerat$3 or develop$3 or chang$3 or adjust$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 19:44
S43	30	S41 and S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 19:48
S44	11	S43 and ((new updated) with (rule policy ruleset))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/11/18 19:48

			DERWENT; IBM_TDB			
S45	0	S44 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 19:48
S46	6	S43 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/18 19:57
S47	0	"17027436"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 13:50
S48	9,507	(packet same filter$3 same inspect$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 15:31
S49	4,791	S48 and (protect$3 with network)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 15:31
S50	445	(malicious with track$3) and match$3 with (transform$5 or chang$3 or alter$3 or control$4 or temper$4 or construct$3 or re$1construct$4 or re$1buil$4 or buil$4 or regenerat$3 or develop$3 or chang$3 or adjust$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 15:31
S51	30	S49 and S50	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/11/19 15:31

			DERWENT; IBM_TDB			
S52	6	S51 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 15:31
S53	6	S52 and (packet and filter$3 and inspect$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 15:46
S54	6	S52 and (packet and filter$3 and inspect$3) and (rule ruleset policy)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 16:08
S55	13	"20020107953" "20020083175"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 16:29
S56	3	S55 and (packet and filter$3 and inspect$3) and (rule ruleset policy)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 16:30
S57	3	S56 and (server router proxy gateway)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 16:41
S58	0	S57 and match$3 with (transform$5 or chang$3 or alter$3 or control$4 or temper$4 or construct$3 or re$1construct$4 or re$1buil$4 or buil$4 or regenerat$3 or develop$3 or chang$3 or adjust$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/11/19 18:00

			DERWENT; IBM_TDB			
S59	2	S57 and match$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 18:09
S60	2	S57 and match$3 and (transform$5 or chang$3 or alter$3 or control$4 or temper$4 or construct$3 or re$1construct$4 or re$1buil$4 or buil$4 or regenerat$3 or develop$3 or chang$3 or adjust$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 18:23
S61	6	S54 and match$3 and (transform$5 or chang$3 or alter$3 or control$4 or temper$4 or construct$3 or re$1construct$4 or re$1buil$4 or buil$4 or regenerat$3 or develop$3 or chang$3 or adjust$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 18:46
S62	2	S55 and dynamic	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 19:08
S63	32,192	((automatically dynamically) with (create created creating generate generated generating alter altered altering) with (rule rule$1set policy))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 19:17
S64	314	S48 and S63	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 19:18
S65	186,045	(H04L63/20 or H04L63/0218 or H04L63/0263 or H04L67/02 or H04L63/1425 or H04L63/0209 or H04L63/0236 or H04L63/168).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/11/19 19:18

			DERWENT; IBM_TDB			
S66	125	S65 and S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 19:18
S67	43	S66 and @ad<"20121022"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 19:18
S68	43	S67 and (packet and filter$3 and inspect$3) and (rule ruleset policy)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 19:32
S69	39	S68 and match$3 and (transform$5 or chang$3 or alter$3 or control$4 or temper$4 or construct$3 or re$1construct$4 or re$1buil$4 or buil$4 or regenerat$3 or develop$3 or chang$3 or adjust$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 20:39
S70	56	(US-20140283004-$ or US-20150237012-$ or US-20140115654-$ or US-20150341388-$ or US-20170359382-$ or US-20190230128-$ or US-20200137121-$ or US-20110173692-$ or US-20050091437-$ or US-20150304354-$ or US-20170359381-$ or US-20170359383-$ or US-20190312911-$ or US-20190124116-$ or US-20200322390-$ or US-20190363965-$ or US-20040172557-$ or US-20140201123-$ or US-20200287888-$ or US-20200351245-$ or US-20200351244-$ or US-20200021560-$ or US-20170048198-$ or US-20180139182-$ or US-20060137009-$ or US-20060146816-$).did. or (US-20160182542-$ or US-20020107953-$ or US-20090271857-$ or US-20080201772-$ or US-20120304244-$	US-PGPUB; USPAT; DERWENT	OR	ON	2020/11/19 21:14

		or US-20110231924-$).did. or (US-9124552-$ or US-9160713-$ or US-9137205-$ or US-9560077-$ or US-10091246-$ or US-10567437-$ or US-10785266-$ or US-9565213-$ or US-10142372-$ or US-10749906-$ or US-10715493-$ or US-10567343-$ or US-7818797-$ or US-9900285-$ or US-10069798-$ or US-10063574-$ or US-7607170-$ or US-7639714-$ or US-7626940-$ or US-9047441-$).did. or (US-20200137121-$ or US-20190230128-$ or US-20150341388-$ or US-20140115654-$).did.				
S71	52	S70 and address	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 21:15
S72	25	S70 and address with match$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 21:15
S73	25	S72 and match$3 and (transform$5 or chang$3 or alter$3 or control$4 or temper$4 or construct$3 or re$1construct$4 or re$1buil$4 or buil$4 or regenerat$3 or develop$3 or chang$3 or adjust$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 21:17
S74	25	S73 and (packet and filter$3) and (rule ruleset policy)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 21:28
S75	3	"20120304244"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 21:46

S76	3	S75 and (malware malicious host track$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 21:47
S77	3	S75 and (malware malicious host track$3 traffic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/19 21:48
S78	3	"20120304244"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 12:08
S79	3	S78 and (processor memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 12:08
S80	56	(US-20140283004-$ or US-20150237012-$ or US-20140115654-$ or US-20150341388-$ or US-20170359382-$ or US-20190230128-$ or US-20200137121-$ or US-20110173692-$ or US-20050091437-$ or US-20150304354-$ or US-20170359381-$ or US-20170359383-$ or US-20190312911-$ or US-20190124116-$ or US-20200322390-$ or US-20190363965-$ or US-20040172557-$ or US-20140201123-$ or US-20200287888-$ or US-20200351245-$ or US-20200351244-$ or US-20200021560-$ or US-20170048198-$ or US-20180139182-$ or US-20060137009-$ or US-20060146816-$).did. or (US-20160182542-$ or US-20020107953-$ or US-20090271857-$ or US-20080201772-$ or US-20120304244-$ or US-20110231924-$).did. or (US-9124552-$ or US-9160713-$ or US-	US-PGPUB; USPAT; DERWENT	OR	ON	2020/11/20 13:06

		9137205-$ or US-9560077-$ or US-10091246-$ or US-10567437-$ or US-10785266-$ or US-9565213-$ or US-10142372-$ or US-10749906-$ or US-10715493-$ or US-10567343-$ or US-7818797-$ or US-9900285-$ or US-10069798-$ or US-10063574-$ or US-7607170-$ or US-7639714-$ or US-7626940-$ or US-9047441-$).did. or (US-20200137121-$ or US-20190230128-$ or US-20150341388-$ or US-20140115654-$).did.				
S81	7	S80 and ((forwarding adj rate) and (forwarding adj queue)).clm.	US-PGPUB; USPAT; DERWENT	OR	ON	2020/11/20 13:07
S82	2	"20050138204"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 13:40
S83	0	S78 and (LAN switch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 13:43
S84	46	S80 and (LAN switch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 13:43
S85	2	S78 and (filter$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 13:49
S86	2	S78 and (rout$3 and monitor$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 13:57

S87	43	S80 and (rout$3 and monitor$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 13:58
S88	3	S78 and (host)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 14:03
S89	2	S78 and (add adding remove removing create created creating generate generated generating alter altered altering) with (rule rule$1set policy)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/11/20 14:11
S90	48	"9560077" "9137205" "9565213"	US-PGPUB; USPAT; DERWENT	OR	ON	2020/11/20 18:31
S91	14	"9560077"	US-PGPUB; USPAT; DERWENT	OR	ON	2020/11/20 18:33

EAST Search History (Interference)

<This search history is empty>

11/20/2020 6:53:50 PM
C:\Users\chuang2\Documents\EAST\Workspaces\17027436.wsp

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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	17027436
Filing Date	09/21/2020
First Named Inventor	Steven Rogers
Art Unit	N/A 2497
Examiner Name	Not Yet Assigned Cheng-Feng Huang
Attorney Docket Number	007742.00188\US

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
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	17027436
Filing Date	09/21/2020
First Named Inventor	Steven Rogers
Art Unit	N/A 2497
Examiner Name	Not Yet Assigned Cheng-Feng Huang
Attorney Docket Number	007742.00188\US

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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Attorney Docket Number	007742.00188\US

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Examiner Signature	/CHENG-FENG HUANG/	Date Considered	11/20/2020

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Doc description: Information Disclosure Statement (IDS) Filed

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	Examiner Name	Not Yet Assigned Cheng-Feng Huang
	Attorney Docket Number	007742.00188\US

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PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17027436
Filing Date	09/21/2020
First Named Inventor	Steven Rogers
Art Unit	N/A 2497
Examiner Name	Not Yet Assigned Cheng-Feng Huang
Attorney Docket Number	007742.00188\US

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Examiner Signature	/CHENG-FENG HUANG/	Date Considered	11/20/2020

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/027,436	09/21/2020	Steven Rogers	007742.00188\US	7579

22907 7590 10/21/2020

BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

EXAMINER	

ART UNIT	PAPER NUMBER
2497	

NOTIFICATION DATE	DELIVERY MODE
10/21/2020	ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

GPD@bannerwitcoff.com
eofficeaction@bannerwitcoff.com

Decision Granting Request for Prioritized Examination (Track I)	**Application No.** 17/027,436	**Applicant(s)** Rogers et al.	
	Examiner TERRI S JOHNSON	**Art Unit** OPET	**AIA (FITF) Status** Yes

1. THE REQUEST FILED 21 September 2020 IS **GRANTED** .

The above-identified application has met the requirements for prioritized examination

A. ☑ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination**. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;

B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims** , or a multiple dependent claim;

C. filing a **request for continued examination** ;

D. filing a notice of appeal;

E. filing a request for suspension of action;

F. mailing of a notice of allowance;

G. mailing of a final Office action;

H. completion of examination as defined in 37 CFR 41.102; or

I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to TERRI JOHNSON at (571)272 -2991. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/TERRI S JOHNSON/ Paralegal Specialist, OPET	

PTO/SB/08a (02-18)
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Application Number	17027436
Filing Date	2020-09-21
First Named Inventor	Steven Rogers
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	007742.00188\US

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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	7853996	B1	2010-12-14	Ormazabal	
	2	8738906	B1	2014-05-27	Sampath et al.	

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	1	20120054869	A1	2012-03-01	Yen et al.	
	2	20150195299	A1	2015-07-09	Zoldi et al.	
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	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

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	2	2019 Dec 18 - (US) Notice of Allowance - US App 16/111,524	
	3	2020 Aug 17 - (US) Notice of Allowance - US App 16/909,327	
	4	2020 Aug 04 - (US) Notice of Allowance - US App 16/728,766	
	5	Xu, et al., "Source Address Filtering Firewall to Defend Against Denial of Service Attacks," September 2004, IEEE 60th Vehicular Technology Conference, Vol. 5, pp. 3296-3300 (Year: 2004).	
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	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

CERTIFICATION STATEMENT

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

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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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	/Kirk A. Sigmon/	Date (YYYY-MM-DD)	2020-10-09
Name/Print	Kirk A. Sigmon	Registration Number	76,326

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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EFS ID:	40814535
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/Jessica Williams
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	12-OCT-2020
Filing Date:	21-SEP-2020
Time Stamp:	10:59:48
Application Type:	Utility under 35 USC 111(a)

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Warnings:					
Information:					
6	Non Patent Literature	2019_Mar_8_Decision_9674148_IPR2018-1454_20787355.PDF	1040184 e502649a9463807e627cd3af7bbc27bf1573a8ba	no	25
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF_20792936.pdf	1035224 87b57d97e5785333fa5a9feba4aacb57289e9d3b	no	6
Warnings:					
Information:					
			Total Files Size (in bytes):	12148021	

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.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/027,436

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	35 minus 20 =	* 15	x 50 =	750	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1	x 240 =	240			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 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).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1820		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	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	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	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 found in the appropriate box in column 1.

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United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/027,436	09/21/2020		1845	007742.00188\US	35	4

CONFIRMATION NO. 7579

22907
BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

FILING RECEIPT

OC000000120456718

Date Mailed: 10/06/2020

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, 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 corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Steven Rogers, Leesburg, VA;
Sean Moore, Hollis, NH;
David K. Ahn, Winston-Salem, NC;
Peter P. Geremia, Portsmouth, NH;

Applicant(s)

Centripetal Networks, Inc., Portsmouth, NH;

Power of Attorney: The patent practitioners associated with Customer Number 22907

Domestic Priority data as claimed by applicant

This application is a CON of 16/909,327 06/23/2020
which is a CON of 16/448,969 06/21/2019 PAT 10749906
which is a CON of 16/158,868 10/12/2018
which is a CON of 15/414,117 01/24/2017 PAT 10142372
which is a DIV of 14/253,992 04/16/2014 PAT 9565213
This application 17/027,436
is a CIP of 16/728,766 12/27/2019 PAT 10785266
which is a CON of 16/111,524 08/24/2018 PAT 10567437
which is a CON of 15/413,834 01/24/2017 PAT 10091246
which is a CON of 14/698,560 04/28/2015 PAT 9560077
which is a CON of 13/657,010 10/22/2012 PAT 9137205

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/02/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/027,436**

Projected Publication Date: 01/14/2021

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **
Title

Methods and Systems for Protecting a Secured Network

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

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Keysight Technologies Ex. 1002
Page 246 of 401



United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :C46910

Sale Accounting Date:10/05/2020

Sale Item Reference Number	Effective Date
17027436	09/21/2020

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I202005947310447	2201	INDEPENDENT CLAIMS IN EXCESS OF 3	$230.00	Deposit Account
I202005947310447	2202	CLAIMS IN EXCESS OF 20	$750.00	Deposit Account

PTO/AIA/01 (06-12)
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHODS AND SYSTEMS FOR PROTECTING A SECURED NETWORK

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

  filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Steven Rogers Date (Optional): 04/16/14

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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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LEGAL NAME OF INVENTOR

Inventor: Sean Moore Date (Optional): 11-NOV-2014

Signature: _____

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LEGAL NAME OF INVENTOR

Inventor: David K. Ahn Date (Optional): 4-16-14

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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- [ ] United States application or PCT international application number _____ filed on _____.

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LEGAL NAME OF INVENTOR

Inventor: Peter P. Geremia Date (Optional): 4/15/14

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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

Electronic Patent Application Fee Transmittal

Application Number:	17027436
Filing Date:	
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Filer:	Kirk Allen Sigmon/MARIAMA SEASAY
Attorney Docket Number:	007742.00188\US

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**80**

Electronic Acknowledgement Receipt

EFS ID:	40631403
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/MARIAMA SEASAY
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	22-SEP-2020
Filing Date:	
Time Stamp:	15:53:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$80
RAM confirmation Number	E20209LF53489802
Deposit Account	190733
Authorized User	MARIAMA SEASAY

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Steven Rogers
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	007742.00188\US

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	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

	45	2019 Apr 8 (US) Final Office Aciton - App. 15/413,947 (007742.00086)	
	46	2018 Aug 10 (US) Declaration of Kevin Jeffay, PhD in Support of Fourth Petition for Inter Partes Review of U.S. Patent No. 9,137,205 - IPR2018-01506	
	47	2018 Aug 10 (US) Fourth Petition for Inter Partes Review of U.S. Patent No. 9,137,205 - IPR2018-01506	
	48	2018 Aug 03 (US) Third Petition for Inter Partes Review of U.S. Patent No. 9,137,205 - IPR2018-01505	
	49	2018 Aug 03 (US) Declaration of Kevin Jeffay, PhD in Support of Third Petition for Inter Partes Review of U.S. Patent No. 9,137,205 - IPR2018-01505	
	50	2018 Aug 03 (US) Declaration of Kevin Jeffay, PhD in Support of Third Petition for Inter Partes Review of U.S. Patent No. 9,560,077 - IPR2018-01513	

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	Steven Rogers
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

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.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

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	/Kirk A. Sigmon/	Date (YYYY-MM-DD)	2020-09-21
Name/Print	Kirk A. Sigmon	Registration Number	76,326

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.**

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.

PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Steven Rogers
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	007742.00188\US

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
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	Steven Rogers
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

	1	2019 Apr 2 (US) Decision - Institution of Inter Partes Review of U.S. Patent 9,560,077 - IPR 2018-01513	
	2	2018 Aug 10 (US) Petition for Inter Partes Review of Claims 1-20 of U.S. Patent No. 9,560,077 - IPR2018-01513	
	3	2019 Jun 3 (US) Final Office Action - App. 15/614,956 (007742.00091)	
	4	2019 May 23 (US) Non-Final Office Action - App. 14/745,207 (007742.00049)	
	5	2019 May 24 (US) Non-Final Office Action - App. 16/111,524 (007742.00123)	
	6	2019 Jun 3 (EP) Communication pursuant to Article 94(3) EPC - Third Examination Report - App. 13765547.8 (007742.00044)	
	7	2018 Aug 2 (US) Notice of Allowance and Fees Due - App. 16/030,254 (007742.00114)	
	8	2019 Jul 5 (EP) Extended European Search Report - App. 19179539.2 (007742.00141)	
	9	2019 Aug 2 (CA) Office Action - App. 2,888,935 (007742.00046)	
	10	2019 Aug 2 (US) Non-Final Office Action - App. 16/448,969 (007742.00143)	
	11	2019 Aug 16 (EP) Extended Search Report - App. 19170936.9 (007742.00140)	

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	Filing Date	
	First Named Inventor	Steven Rogers
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

	12	2018 Sep 18 (US) Petition for Inter Partes Review of U.S. Patent No. 9,413,722 - IPR 2018-01760	
	13	2018 Sep 18 (US) Declaration of Dr. Stuart Staniford in Support of Petition for Inter Partes Review of U.S. Patent No. 9,413,722 - IPR 2018-01760	
	14	2019 Sept 3 (US) Notice of Allowance and Fees Due - App. 16/518,190 (007742.00147)	
	15	2019 Aug 19 (EP) Communication pursuant to Article 94(3) EPC - Examination Report - App. 14719415.3 (007742.00053)	
	16	2019 Oct 11 - (US) Non-Final Office Action - App 16/554,293	
	17	2019 Oct 10 - (US) Notice of Allowance - App 16/448,997	
	18	2019 Sept. 30 (WO) International Search Report and Written Opinion of International Searching Authority - Application No. PCT/US2019/040830.	
	19	Exhibit 1022 - "Transmission Control Protocol," IETF RFC 793. J. Postel, ed., September 1981	
	20	Exhibit 1023 - "Internet Protocol," IETF RFC 791, J. Postel, ed., September 1981	
	21	Exhibit 1024 - "File Transfer Protocol," IETF RFC 765, J. Postel, ed., June 1980	
	22	2019 May 20 (US) Decision - Institution of Inter Partes Review of U.S. Patent 9,413,722 B1 - IPR 2018-01760	

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	Application Number	
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	First Named Inventor	Steven Rogers
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

	23	2019 Aug 20 (US) Declaration of Dr. Alessandro Orso in Support of Patent Owner's Response of U.S. Patent No. 9,413,722 - IPR 2018-01760	
	24	2019 Feb 21 (US) Patent Owner's Preliminary Response of U.S. Patent No. 9,413,722 - IPR 2018-01760	
	25	2019 Aug 20 (US) Patent Owner's Response of U.S. Patent No. 9,413,722 - IPR 2018-01760	
	26	2020 Jan 15 (US) Patent Owner's Sur-Reply to Petitioner's Reply - IPR 2018-01760	
	27	2020 Jan 8 (US) Deposition of Jacob H. Baugher, III - IPR 2018-01760	
	28	2020 Feb 11 (US) Final Written Decision Determining All Challenged Claims Unpatentable of U.S. Patent 9,137,205 B2 - IPR 2018-01444	
	29	2020 Feb 11 (US) Final Written Decision Determining All Challenged Claims Unpatentable of U.S. Patent 9,137,205 B2 - IPR 2018-01443	
	30	2020 Mar 19 (US) Final Written Decision Determining All Challenged Claims Unpatentable of U.S. Patent 9,565,213 B2 - IPR 2018-01512	
	31	2020 Jan 23 (US) Final Written Decision Determining All Challenged Claims Unpatentable of U.S. Patent 9,565,213 B2 - IPR 2018-01386	
	32	2020 Mar 31 (US) Final Written Decision Determining All Challenged Claims Unpatentable of U.S. Patent 9,560,077 B2 - IPR 2018-01513	
	33	2020 July 02 - (US) Final Rejection - US App 16/158,868	

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	Filing Date	
	First Named Inventor	Steven Rogers
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

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EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

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Signature	/Kirk A. Sigmon/	Date (YYYY-MM-DD)	2020-09-21
Name/Print	Kirk A. Sigmon	Registration Number	76,326

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Docket No.: 007742.00188\US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Steven Rogers et al.

Application No.: Not Yet Assigned	Confirmation No.: N/A
Filed: Concurrently Herewith	Art Unit: N/A
For: Methods and Systems for Protecting a Secured Network	Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER §1.97(B)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Pursuant to 37 C.F.R. § 1.56 and in compliance with 37 C.F.R. § 1.97, Applicants submit herewith form PTO/SB/08, identifying information for consideration by the Examiner.

This application relies, under 35 U.S.C. § 120, on the earliest effective filing date of prior U.S. patent application 16/909327, filed June 23, 2020, and its parent applications (if any). The documents identified on the attached PTO/SB/08 were submitted to and/or cited by the Office in a prior application that is relied upon for priority and, therefore, copies are not required to be provided in this application.

Applicants do not waive any rights to take appropriate action to establish patentability over the listed documents should they be applied as a reference against the claims of the present application.

Consideration of the cited information and making the same of record in the prosecution of the above noted application are respectfully requested. Should the Patent and Trademark Office determine that a fee is required, please charge our Deposit Account No. 19-0733.

Dated: September 21, 2020

Respectfully submitted,

By: */Kirk A. Sigmon/*
Kirk A. Sigmon
Registration No.: 76,326

BANNER & WITCOFF, LTD.
1100 13th St. NW
STE 1200
Washington, DC 20005
(202) 824-3000

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Filer:	Kirk Allen Sigmon/MARIAMA SEASAY
Attorney Docket Number:	007742.00188\US

Filed as Small Entity

Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
REQUEST FOR PRIORITIZED EXAMINATION	2817	1	2000	2000
Pages:				
Claims:				
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70

Petition:	
Patent-Appeals-and-Interference:	
Post-Allowance-and-Post-Issuance:	
Extension-of-Time:	
Miscellaneous:	
Total in USD ($)	**2855**

Electronic Acknowledgement Receipt

EFS ID:	40620350
Application Number:	17027436
International Application Number:	
Confirmation Number:	7579
Title of Invention:	Methods and Systems for Protecting a Secured Network
First Named Inventor/Applicant Name:	Steven Rogers
Customer Number:	22907
Filer:	Kirk Allen Sigmon/MARIAMA SEASAY
Filer Authorized By:	Kirk Allen Sigmon
Attorney Docket Number:	007742.00188\US
Receipt Date:	21-SEP-2020
Filing Date:	
Time Stamp:	18:34:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$2855
RAM confirmation Number	E20209KI35343406
Deposit Account	190733
Authorized User	MARIAMA SEASAY

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	Application_Data_Sheet_Fillable_PDF_20757620.pdf	1256331 fdc8de6cb7fb3b4f9757d3a6afbf8b321ed805ec	no	10
Warnings:					
Information:					
2	TrackOne Request	Certification_and_Request_for_Prioritized_Examination_20757841.pdf	33940 81de63ea1abf256c1590b2ab322e0ad4c8dc85c6	no	1
Warnings:					
Information:					
3		00188_-_Continuation_Specification_20757837.pdf	174917 7b80fc5c626f671307de7128b8853e975f792f93	yes	45

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	35
Claims	36	44
Abstract	45	45

Warnings:					
Information:					
4	Drawings-only black and white line drawings	Continuation_Drawings_20757585.PDF	173277 8a02a116b84dbf6233f5cebb599858d315432b51	no	13
Warnings:					
Information:					
5	Power of Attorney	POA_20757665.PDF	338474 35d796ba30af1fa5d9c33993446e031400b573d4	no	2

Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF_1_of_5_20757705.pdf	1043100 e30822423eeb8ecb224dbb1a29296dc0b8136d11	no	36
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF_2_of_5_20757707.pdf	1036196 0ef3c405a93e1023f433f98e7ef9470d27177459	no	8
Warnings:					
Information:					
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8	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF_3_of_5_20757708.pdf	1037750 17e7c4b8d30636bcfd96ce831054b7ae1dfd863f	no	8
Warnings:					
Information:					
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9	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF_4_of_5_20757710.pdf	1036280 68077b5f5a3e6bc68bf69b42b9ee9f0e93dd0ae5	no	8
Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
10	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF_5_of_5_20757711.pdf	1035505 201f337f290ebb90878a759420009614681 01b3a	no	7
Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for					

autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.

11	Transmittal Letter	Information_Disclosure_Statement_Under_1_20757842.pdf	21552 1a9d7793b21a0858eb1b0b7afa8c11d192ca6deb	no	2
Warnings:					
Information:					
12	Fee Worksheet (SB06)	fee-info.pdf	40379 e4b8cf6693a63c120f78d78aae9882852471 4d5f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	7227701		

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 Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Steven		Rogers	

Residence Information (Select One) ● US Residency Non US Residency Active US Military Service

City	State/Province	Country of Residence
Leesburg	VA	US

Mailing Address of Inventor:

Address 1	c/o Centripetal Networks, Inc.
Address 2	99 Bow Street, Suite 300W

City	State/Province	Postal Code	Country
Portsmouth	NH	03801	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Sean		Moore	

Residence Information (Select One) ◉ US Residency Non US Residency Active US Military Service

City	State/Province	Country of Residence
Hollis	NH	US

Mailing Address of Inventor:

Address 1	c/o Centripetal Networks, Inc.
Address 2	99 Bow Street, Suite 300W

City	State/Province	Postal Code	Country
Portsmouth	NH	03801	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	David	K.	Ahn	

Residence Information (Select One) ◉ US Residency Non US Residency Active US Military Service

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

City	Winston-Salem	State/Province	NC	Country of Residence	US

Mailing Address of Inventor:

Address 1	c/o Centripetal Networks, Inc.
Address 2	99 Bow Street, Suite 300W

City	Portsmouth	State/Province	NH
Postal Code	03801	Country	US

Inventor 4 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Peter	P.	Geremia	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Portsmouth	State/Province	NH	Country of Residence	US

Mailing Address of Inventor:

Address 1	c/o Centripetal Networks, Inc.
Address 2	99 Bow Street, Suite 300W

City	Portsmouth	State/Province	NH
Postal Code	03801	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	22907		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	Methods and Systems for Protecting a Secured Network		
Attorney Docket Number	007742.00188\US	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	13	Suggested Figure for Publication (if any)	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	22907		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16/909327	2020-06-23

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/909327	Continuation of	16/448969	2019-06-21	10749906	2020-08-18
Prior Application Status	Pending				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
16/448969	Continuation of	16/158868	2018-10-12		
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/158868	Continuation of	15/414117	2017-01-24	10142372	2018-11-27
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15/414117	Division of	14/253992	2014-04-16	9565213	2017-02-07
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	Continuation in part of	16/728766	2019-12-27	10785266	2020-09-22
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/728766	Continuation of	16/111524	2018-08-24	10567437	2020-02-18
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/111524	Continuation of	15/413834	2017-01-24	10091246	2018-10-02
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15/413834	Continuation of	14/698560	2015-04-28	9560077	2017-01-31
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/698560	Continuation of	13/657010	2012-10-22	9137205	2015-09-15

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Centripetal Networks, Inc.		
Mailing Address Information For Applicant:			
Address 1	c/o Centripetal Networks, Inc.		
Address 2	99 Bow Street, Suite 300W		
City	Portsmouth	**State/Province**	NH
Country	US	Postal Code	03801
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Kirk A. Sigmon/			Date (YYYY-MM-DD)	2020-09-21
First Name	Kirk	Last Name	Sigmon	Registration Number	76,326

Additional Signature may be generated within this form by selecting the Add button. Add

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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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	007742.00188\US
	Application Number	
Title of Invention	Methods and Systems for Protecting a Secured Network	

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

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 records.

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 CooperationTreaty.

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.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Steven Rogers
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	007742.00188\US

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					

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	1					

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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	
	Filing Date	
	First Named Inventor	Steven Rogers
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

	1	2016 Dec 05 - (US) Notice of Allowance - App 14/714,207	
	2	2016 Feb 24 - (AU) Office Action - App 2014228257	
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	6	2016 Jan 28 - (WO) International Search Report and Written Opinion - App PCT/US2015/062691	
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	Attorney Docket Number	007742.00188\US

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	13	2016 May 06 - (US) Office Action - App 14/714,207	
	14	2016 May 13 - (US) Office Action - App 13/940,240	
	15	2016 Nov 21 - (US) Office Action - App 14/745,207	
	16	2016 Oct 05 - (US) Notice of Allowance - App 14/698,560	
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	Attorney Docket Number	007742.00188\US

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	26	2017 Jul 20 (US) Complaint for Patent Infringement - Case No. 2:17-cv-00383-HCN-LRL, Document 1, 38 pages.	
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	Attorney Docket Number	007742.00188\US

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	Attorney Docket Number	007742.00188\US

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).

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

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	/Kirk A. Sigmon/	Date (YYYY-MM-DD)	2020-09-21
Name/Print	Kirk A. Sigmon	Registration Number	76,326

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Application Number	Not Yet Assigned
Filing Date	Concurrently Herewith
First Named Inventor	Steven Rogers
Title	Methods and Systems for Protecting a Secured Network
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	007742.00188\US

SIGNATURE of Applicant or Patent Practitioner

Signature	/Kirk A. Sigmon/	Date (Optional)	Sept. 21, 2020
Name	Kirk A. Sigmon	Registration Number	76,326
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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SIGNATURE of Applicant for Patent

Signature		Date	July 19 2013
Name	Steven Rogers	Telephone	(571) 252-5082
Title and Company	Chief Executive Officer, Centripetal Networks, Inc.		

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First Named Inventor	Steven Rogers
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	007742.00188\US

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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
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	Attorney Docket Number	007742.00188\US

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	10	6907042	B1	2005-06-14	Oguchi	
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	Attorney Docket Number	007742.00188\US

	18	2011 Mar 04 - (US) Notice of Allowance - App 11/316,331	
	19	2011 Nov 11 - (AU) Second Office Action - App 2006230171	
	20	2011 Oct 18 - (EP) Communication Pursuant to Article 94(3) - App 06 758 213.0	
	21	2012 Aug 07 - (US) Non Final Rejection - App 12/871,806	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
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	First Named Inventor	Steven Rogers
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

	29	2013 Jan 16 - (CA) Office Action - App 2,594,020
	30	2013 Jan 17 - (CA) Office Action - App 2,600,236
	31	2013 Nov 7 (WO) International Search Report - App. PCT/US2013/057502
	32	2014 Jun 24 (WO) International Search Report - App. PCT/US2014/023286
	33	2014 Jun 26 (WO) International Search Report - App. PCT/US2014/027723
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	Examiner Name	Not Yet Assigned
	Attorney Docket Number	007742.00188\US

	40	2015 Jul 14 - (WO) International Preliminary Report on Patentability - App PCT/US2013/072566	
	41	2015 May 14 - (US) Non Final Rejection - App 13/940,240	
	42	2015 May 25 - (AU) Notice of Acceptance - App 2010297968	
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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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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.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

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	/Kirk A. Sigmon/	Date (YYYY-MM-DD)	2020-09-21
Name/Print	Kirk A. Sigmon	Registration Number	76,326

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.**

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.

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Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Steven Rogers	Nonprovisional Application Number (if known):	Not Yet Assigned
Title of Invention:	Methods and Systems for Protecting a Secured Network		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.
2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.
3. The applicable box is checked below:

I. [x] **Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)**

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. [ ] **Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)**

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature	/Kirk A. Sigmon/	Date	September 21, 2020
Name (Print/Typed)	Kirk A. Sigmon	Practitioner Registration Number	76,326

Note: *This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.**

[ ] *Total of 1 forms are submitted.

METHODS AND SYSTEMS FOR PROTECTING A SECURED NETWORK

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of co-pending U.S. Patent Application Serial No. 16/909,327, filed June 23, 2020, and a continuation-in-part of U.S. Patent Application Serial No. 16/728,766, filed December 27, 2019 (now U.S. Patent No. 10,785,266), which is a continuation of U.S. Patent Application Serial No. 16/448,969 (now U.S. Patent No. 10,749,906), filed June 21, 2019, which is a continuation of U.S. Patent Application Serial No. 16/158,868, filed October 12, 2018, which is a continuation of U.S. Patent Application Serial No. 15/414,117 (now U.S. Patent No. 10,142,372), filed January 24, 2017, which is divisional of and claims priority to U.S. Patent Application Serial No. 14/253,992 (now U.S. Patent No. 9,565,213), filed April 16, 2014, the disclosures of which are incorporated by reference herein in their entirety.

BACKGROUND

[0002] The TCP/IP network protocols (*e.g.*, the Transmission Control Protocol (TCP) and the Internet Protocol (IP)) were designed to build large, resilient, reliable, and robust networks. Such protocols, however, were not originally designed with security in mind. Subsequent developments have extended such protocols to provide for secure communication between peers (*e.g.*, Internet Protocol Security (IPsec)), but the networks themselves remain vulnerable to attack (*e.g.*, Distributed Denial of Service (DDoS) attacks).

[0003] Most existing approaches to protecting such networks are reactive rather than proactive. While reactive approaches may identify the source of an attack and assist in subsequent mitigation efforts, in most instances, the attack will have already been successfully launched.

[0004] Proactive solutions, however, have often been deemed untenable due to an inability to scale to larger networks. A significant challenge associated with building a scalable proactive solution is the need to filter substantially all network traffic at a high resolution. In a large network, where traffic volumes may be enormous, the time required to provide high resolution filtering has traditionally been thought to render a proactive solution infeasible.

SUMMARY

[0005] The following presents a simplified summary in order to provide a basic understanding of some aspects of the disclosure. It is neither intended to identify key or critical elements of the disclosure nor to delineate the scope of the disclosure. The following summary merely presents some concepts in a simplified form as a prelude to the description below.

[0006] Aspects of this disclosure relate to protecting a secured network. In some embodiments, one or more packet security gateways are associated with a security policy management server. At each of the packet security gateways, a dynamic security policy may be received from the security policy management server, packets associated with a network protected by the packet security gateway may be received, and at least one of multiple packet transformation functions specified by the dynamic security policy may be performed on the packets. Performing the at least one of multiple packet transformation functions specified by the dynamic security policy on the packets may include performing at least one packet transformation function other than forwarding or dropping the packets.

[0007] In some embodiments, two or more of the packet security gateways may be configured in series such that packets forwarded from a first of the packet security gateways are received by a second of the packet security gateways. In some embodiments, the dynamic security policy may include two rules requiring sequential execution. A first of the packet security gateways may perform a packet transformation function specified by one of the rules on the packets and a second of the packet security gateways may subsequently perform a packet transformation function specified by the other of the rules on packets received from the first packet security gateway.

[0008] In some embodiments, the dynamic security policy may include a rule specifying a set of network addresses for which associated packets should be dropped and a rule specifying that all packets associated with network addresses outside the set should be forwarded. Additionally or alternatively, the dynamic security policy may include a rule specifying a set of network addresses for which associated packets should be forwarded and a rule specifying that all packets associated with network addresses outside the set should be dropped. In some embodiments, the security policy management server may receive information associated with one or more Voice over Internet Protocol (VoIP) sessions and the set of network addresses for which associated packets

should be forwarded may be created or altered utilizing the information associated with the one or more VoIP sessions.

[0009] In some embodiments, the packet security gateways may receive three or more dynamic security policies from the security policy management server. A first of the dynamic security policies may specify a first set of network addresses for which packets should be forwarded. A second of the dynamic security policies may be received after the first and may specify a second set of network addresses, which includes more network addresses than the first set, for which packets should be forwarded. A third of the dynamic security policies may be received after the second and may specify a third set of network addresses, which includes more network addresses than the second set, for which packets should be forwarded.

[0010] In some embodiments, the dynamic security policy may include two rules that each specify a set of network addresses. The dynamic security policy may specify that packets associated with the first set of network addresses should be placed in a first forwarding queue and packets associated with the second set of network addresses should be placed in a second forwarding queue. The first forwarding queue may have a different queueing policy, for example, a higher forwarding rate, than the second forwarding queue.

[0011] In some embodiments, the dynamic security policy may include a rule specifying a set of network addresses and an additional parameter. The packet transformation function specified by the dynamic security policy may include routing packets that fall within the specified set and match the additional parameter to a network address different from a destination network address specified by the packets. In some embodiments, the additional parameter may be a Session Initiation Protocol (SIP) Uniform Resource Identifier (URI). The network address different from the destination network address may correspond to a device configured to copy information contained within the packets and forward the packets to the destination network address specified by the packets.

[0012] In some embodiments, the packet transformation function may forward the packets into the network protected by the packet security gateway. In some embodiments, the packet transformation function may forward the packets out of the network protected by the packet security gateway. In some embodiments, the packet transformation function may forward the one

or more packets to an IPsec stack having an IPsec security association corresponding to the packets. In some embodiments, the packet transformation function may drop the packets.

[0013] In some embodiments, the dynamic security policy may include multiple rules. One of the rules may specify the packet transformation function. In some embodiments, one of the rules may specify a five-tuple of values selected from packet header information. The five-tuple may specify one or more protocol types, one or more IP source addresses, one or more source ports, one or more IP destination addresses, and one or more destination ports. In some embodiments, one of the rules may specify a Differentiated Service Code Point (DSCP) that maps to a DSCP field in an IP header of one of the packets.

[0014] In some embodiments, one of the packet security gateways may operate in a network layer transparent manner. For example, the packet security gateway may send and receive traffic at a link layer using an interface that is not addressed at the network layer and simultaneously perform the packet transformation function at the network layer. Additionally or alternatively, the packet security gateway may include a management interface having a network layer address. Access to the management interface may be secured at the application level.

[0015] In some embodiments, the dynamic security policy may include a rule generated based, at least in part, on a list of known network addresses associated with malicious network traffic. In some embodiments, the list of known network addresses associated with malicious network traffic may be received from a subscription service that aggregates information associated with malicious network traffic.

[0016] In some embodiments, the packets associated with the network protected by the packet security gateway may originate within the network protected by the packet security gateway and may be destined for a network distinct from the network protected by the packet security gateway. Additionally or alternatively, the packets associated with the network protected by the packet security gateway may originate within a network distinct from the network protected by the packet security gateway and may be destined for a host within the network protected by the packet security gateway.

[0017] In some embodiments, one of the packet security gateways may be located at each boundary between a protected network associated with the security policy management server and an unprotected network.

[0018] Other details and features will be described in the sections that follow.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] The present disclosure is pointed out with particularity in the appended claims. Features of the disclosure will become more apparent upon a review of this disclosure in its entirety, including the drawing figures provided herewith.

[0020] Some features herein are illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings, in which like reference numerals refer to similar elements.

[0021] FIG. 1 illustrates an exemplary network environment in which one or more aspects of the disclosure may be implemented.

[0022] FIG. 2 illustrates an exemplary packet security gateway.

[0023] FIG. 3 illustrates an exemplary dynamic security policy.

[0024] FIG. 4 illustrates an exemplary configuration of multiple packet security gateways in series.

[0025] FIG. 5 illustrates an exemplary security policy management server.

[0026] FIG. 6 illustrates an exemplary network environment for implementing a monitoring service.

[0027] FIG. 7 illustrates an exemplary network environment that includes a secured network having multiple boundaries with unsecured networks.

[0028] FIG. 8 illustrates an exemplary network environment that includes multiple distinct secured networks.

[0029] FIG. 9 illustrates an exemplary secure LAN environment.

[0030] FIG. 10 illustrates an exemplary method for protecting a secured network.

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[0031] FIG. 11 illustrates an exemplary method for protecting a secured network that includes identifying packets based on application-layer packet-header information.

[0032] FIG. 12 illustrates an exemplary method for protecting a secured network that includes performing a packet digest logging function on packets that correspond to specified packet-identification criteria.

[0033] FIG. 13 illustrates an exemplary method for protecting a secured network that includes receiving security updates from multiple sources.

DETAILED DESCRIPTION

[0034] In the following description of various illustrative embodiments, reference is made to the accompanying drawings, which form a part hereof, and in which is shown, by way of illustration, various embodiments in which aspects of the disclosure may be practiced. It is to be understood that other embodiments may be utilized, and structural and functional modifications may be made, without departing from the scope of the present disclosure.

[0035] Various connections between elements are discussed in the following description. These connections are general and, unless specified otherwise, may be direct or indirect, wired or wireless. In this respect, the specification is not intended to be limiting.

[0036] FIG. 1 illustrates an exemplary network environment in which one or more aspects of the disclosure may be implemented. Referring to FIG. 1, network environment **100** may include networks A – E **102**, **104**, **106**, **108**, and **110**. One or more networks within network environment **100** may be a Local Area Network (LAN) or a Wide Area Network (WAN). Such a LAN or WAN may be associated, for example, with an organization (*e.g.*, a company, university, enterprise, or government agency). For example, networks A – D **102**, **104**, **106**, and **108** may be LANs, any combination of which may be associated with one or more organizations. One or more networks within network environment **100** may interface with one or more other networks within network environment **100**. For example, network environment **100** may include a WAN that interfaces one or more LANs within network environment **100** or network environment **100** may include one or more Internet Service Providers (ISPs) that interface one or more LANs or WANs within network

environment **100** via the Internet. For example, network E **110** may comprise the Internet and may interface networks A – D **102**, **104**, **106**, and **108**.

[0037] As used herein, a packet security gateway includes any computing device configured to receive packets and perform a packet transformation function on the packets. Optionally, a packet security gateway may further be configured to perform one or more additional functions as described herein. As used herein, a security policy management server includes any computing device configured to communicate a dynamic security policy to a packet security gateway. Optionally, a security policy management server may further be configured to perform one or more additional functions as described herein. As used herein, a dynamic security policy includes any rule, message, instruction, file, data structure, or the like that specifies criteria corresponding to one or more packets and identifies a packet transformation function to be performed on packets corresponding to the specified criteria. Optionally, a dynamic security policy may further specify one or more additional parameters as described herein.

[0038] Network environment **100** may include one or more packet security gateways and one or more security policy management servers. For example, network environment **100** may include packet security gateways **112**, **114**, **116**, and **118**, and security policy management server **120**. One or more security policy management servers may be associated with a protected network. For example, networks A – D **102**, **104**, **106**, and **108** may each be distinct LANs associated with a common organization and may each form part of a protected network associated with security policy management server **120**. Many network protocols route packets dynamically, and thus the path a given packet may take cannot be readily predicted. Accordingly it may be advantageous to locate a packet security gateway at each boundary between a protected network and an unprotected network. For example, packet security gateway **112** may be located at the boundary between network A **102** and network E **110**. Similarly, packet security gateway **114** may be located at the boundary between network B **104** and network E **110**; packet security gateway **116** may be located at the boundary between network C **106** and network E **110**; and packet security gateway **118** may be located at the boundary between network D **108** and network E **110**. As will be described in greater detail below, each of one or more packet security gateways associated with a security policy management server may be configured to receive a dynamic security policy from the security policy management server, receive packets associated with a network protected by the packet

security gateway, and perform a packet transformation function specified by the dynamic security policy on the packets. For example, each of packet security gateways **112**, **114**, **116**, and **118** may be configured to receive a dynamic security policy from security policy management server **120**. Each of packet security gateways **112**, **114**, **116**, and **118** may also be configured to receive packets respectively associated with networks A – D **102**, **104**, **106**, and **108**. Each of packet security gateways **112**, **114**, **116**, and **118** may further be configured to perform a packet transformation function specified by the dynamic security policy received from security policy management server **120** on the packets respectively associated with networks A – D **102**, **104**, **106**, and **108**.

[0039] FIG. 2 illustrates an exemplary packet security gateway according to one or more aspects of the disclosure. Referring to FIG. 2, as indicated above, packet security gateway **112** may be located at network boundary **200** between network A **102** and network E **110**. Packet security gateway **112** may include processor **202**, memory **204**, network interfaces **206** and **208**, packet filter **214**, and management interface **222**. Processor **202**, memory **204**, network interfaces **206** and **208**, packet filter **214**, and management interface **222** may be interconnected via data bus **210**. Network interface **206** may connect packet security gateway **112** to network E **110**. Similarly, network interface **208** may connect packet security gateway **112** to network A **102**. Memory **204** may include one or more program modules that when executed by processor **202**, configure packet security gateway **112** to perform various functions as described herein.

[0040] Packet security gateway **112** may be configured to receive a dynamic security policy from security policy management server **120**. For example, packet security gateway **112** may receive dynamic security policy **212** from security policy management server **120** via management interface **222** (*i.e.*, out-of-band signaling) or network interface **206** (*i.e.*, in-band signaling). Packet security gateway **112** may include one or more packet filters or packet discriminators, or logic for implementing one or more packet filters or packet discriminators. For example, packet security gateway **112** may include packet filter **214**, which may be configured to examine information associated with packets received by packet security gateway **112** and forward the packets to one or more packet transformation functions based on the examined information. For example, packet filter **214** may examine information associated with packets received by packet security gateway **112** (*e.g.*, packets received from network E **110** via management interface **222** or network interface

206) and forward the packets to one or more of packet transformation functions 1 – N **216**, **218**, and **220** based on the examined information.

[0041] As will be described in greater detail below, dynamic security policy **212** may include one or more rules and the configuration of packet filter **214** may be based on one or more of the rules included in dynamic security policy **212**. For example, dynamic security policy **212** may include one or more rules specifying that packets having specified information should be forwarded to packet transformation function **216**, while all other packets should be forwarded to packet transformation function **218**. Packet transformation functions 1 – N **216**, **218**, and **220** may be configured to perform one or more functions on packets they receive from packet filter **214**. For example, packet transformation functions 1 – N **216**, **218**, and **220** may be configured to forward packets received from packet filter **214** into network A **102**, forward packets received from packet filter **214** to an IPsec stack having an IPsec security association corresponding to the packets, or drop packets received from packet filter **214**. In some embodiments, one or more of packet transformation functions 1 – N **216**, **218**, and **220** may be configured to drop packets by sending the packets to a local "infinite sink" (*e.g.*, the /dev/null device file in a UNIX/LINUX system).

[0042] In some embodiments, packet security gateway **112** may be configured in a network layer transparent manner. For example, packet security gateway **112** may be configured to utilize one or more of network interfaces **206** and **208** to send and receive traffic at the link layer. One or more of network interfaces **206** and **208**, however, may not be addressed at the network layer. Because packet filter **214** and packet transformation functions 1 – N **216**, **218**, and **220** operate at the network layer, PSG **112** may still perform packet transformation functions at the network layer. By operating in a network layer transparent manner, packet security gateway **112** may insulate itself from network attacks (*e.g.*, DDoS attacks) launched at the network layer because attack packets cannot be routed to the network interfaces **206** and **208**. In some embodiments, packet security gateway **112** may include management interface **222**. Management interface **222** may be addressed at the network level in order to provide packet security gateway **112** with network level addressability. Access to management interface **222** may be secured, for example, at the application level by using a service such as SSH, or secured at the transport level using, *e.g.*, TLS, or secured at the network level by attaching it to a network with a separate address space and

routing policy from network A **102** and network E **110**, or secured at the link level, *e.g.*, using the IEEE 802.1X framework, etc.

[0043] The flows illustrated by Figure 2 are merely exemplary and show packets that originate within a network distinct from network A **102** and are destined for a host within network A **102** in order to simplify the illustration. Packet security gateway **112** may be configured to receive and filter packets that originate within a network other than network A **102** (*e.g.*, networks B – E **104**, **106**, **108**, or **110**) and are destined for a host within network A **102**, as well as packets that originate within network A **102** destined for a network distinct from network A **102** (*e.g.*, network B – D **104**, **106**, **108**, or **110**). That is, packet security gateway **112** may be configured to filter and perform one or more packet transformation functions on packets flowing in either direction and may thus be utilized, for example, to both protect network A **102** from malicious network traffic and to prevent malicious network traffic from leaving network A **102**.

[0044] FIG. 3 illustrates an exemplary dynamic security policy in accordance with one or more embodiments. Referring to FIG. 3, dynamic security policy **300** may include rules 1 – 5 **302**, **304**, **306**, **308**, and **310**. Each rule may specify criteria and one or more packet transformation functions that should be performed for packets associated with the specified criteria. The specified criteria may take the form of a five-tuple of values selected from packet header information, specifying a protocol type of the data section of the IP packet (*e.g.*, TCP, UDP, ICMP, or any other protocol), one or more source IP addresses, one or more source port values, one or more destination IP addresses, and one or more destination ports. For example, rule 1 **302** may specify that IP packets containing TCP packets, originating from a source IP address that begins with 140, having any source port, destined for an IP address that begins with 130, and destined for port 20 should have an accept packet transformation function (*e.g.*, the identity function) performed on them. Similarly, rule 2 **304** may specify that IP packets containing TCP packets, originating from a source IP address that begins with 140, having any source port, destined for any IP address, and destined for port 80 should have an accept packet transformation function performed on them; rule 3 **306** may specify that IP packets containing TCP packets, originating from a source IP address that begins with 150, having any source port, destined for any IP address that begins with 120, and destined for port 90 should have an accept packet transformation function performed on them; rule 4 **308** may specify that IP packets containing UDP packets, originating from a source IP address

that begins with 150, having any source port, destined for any IP address, and destined for port 3030 should have an accept packet transformation function performed on them; and rule 5 **310** may specify that IP packets containing any data, originating from any source IP address, having any source port, destined for any IP address, and destined for any port should have a deny packet transformation function performed on them. One or more rules included in dynamic security policy **300** may be specified in IP version 4 or IP version 6. In some embodiments, the specified criteria may comprise values selected from application-layer packet-header information. For example, application-layer hypertext transfer protocol (HTTP) packets, which transfer information between instances of web client applications (*e.g.*, web browsers) and web server applications (*e.g.*, named web sites such as www.examplewebsite.com), may contain headers that specify methods and/or one or more uniform resource identifiers (URIs) for transferring resources (*e.g.*, files) between client and servers. For example, the HTTP GET method may transfer URI-labeled resources (*e.g.*, hypertext markup language (HTML) files) from a server to a client. Similarly, the HTTP PUT method may transfer resources from a client to a server. A rule may specify that IP packets containing HTTP packets with a GET method and transferring a resource with a particular URI should have an accept packet transformation function performed on them. Another rule may specify that IP packets containing HTTP packets with a PUT method and transferring a resource to a server with a particular URI should have a deny packet transformation function performed on them. Rules may specify criteria comprising values selected from five-tuple header information and/or values selected from application-layer header information.

[0045] As will be described in greater detail below, dynamic security policy **300** may include one or more rules that specify a packet transformation function other than forwarding (accepting or allowing) or dropping (denying) a packet. For example, rule 3 **306** may specify that IP packets containing TCP packets, originating from a source IP address that begins with 150, having any source port, destined for any IP address that begins with 120, and destined for port 90 should not only have an accept packet transformation function performed on them, but should also be routed to a monitoring device.

[0046] One or more rules within dynamic security policy **300** may be required to execute in a specific order. For example, it may be required that rule 5 **310** be executed last. Because rule 5 **310** specifies that any packet should have a deny packet transformation function performed on it,

if it were executed before a rule specifying an accept packet transformation function (*e.g.*, one or more of rules 1 – 4 **302**, **304**, **306**, or **308**), no packets matching the criteria specified by the rule specifying the accept packet transformation function would pass through a packet security gateway implementing dynamic security policy **300**. Similarly, two or more rules within dynamic security policy **300** may specify overlapping criteria and different packet transformation functions. In such cases, the order-of-application of the rules may determine which rule is applied to a packet that would match the two or more rules. Such rules may be merged together or otherwise transformed into a different set of rules without overlapping criteria, which may produce the same result as the original set of rules, when applied to any packet.

[0047] A dynamic security policy may utilize the combination of one or more rules to create policies for governing packets within a network environment or effectuating one or more services within a network environment. For example, a dynamic security policy may include one or more rules, the combination of which may effectuate a blocklist service within a network environment. A dynamic security policy that effectuates a blocklist service within a network environment may include one or more rules specifying criteria (*e.g.*, a set of network addresses) for which associated packets should be blocked, dropped, or denied, and at least one rule specifying that all packets outside the specified block sets should be forwarded, accepted, or allowed. Such a dynamic security policy may be constructed by including one or more rules specifying criteria (*e.g.*, a set of network addresses) for which associated packets should be dropped, and a wildcard rule, designated to be executed last, and specifying that all packets should be allowed. One or more dynamic security policies that effectuate a blocklist service may be utilized to implement one or more Virtual Private Networks (VPNs).

[0048] A dynamic security policy may also include one or more rules, the combination of which may effectuate an allowlist service within a network environment. A dynamic security policy that effectuates an allowlist service within a network environment may include one or more rules specifying criteria (*e.g.*, a set of network addresses) for which associated packets should be forwarded, allowed, or accepted, and at least one rule specifying that all packets outside the specified allow sets should be blocked, denied, or dropped. Such a dynamic security policy may be constructed by including one or more rules specifying criteria (*e.g.*, a set of network addresses) for which associated packets should be forwarded, and a wildcard rule, designated to be executed

last, and specifying that all packets should be blocked. For example, dynamic security policy **300** includes rules 1 – 4 **302**, **304**, **306**, and **308**, each of which specifies a set of network addresses for which packets should be allowed, and rule 5 **310** which specifies that all packets should be dropped. Thus, if rules 1 – 5 **302**, **304**, **306**, **308**, and **310** are executed in order, dynamic security policy **300** will effectuate an allowlist service.

[0049] A dynamic security policy may also include one or more rules, the combination of which may effectuate a VoIP firewall service within a network environment. As will be discussed in greater detail below, a security policy management server may receive information associated with VoIP sessions. For example, a security policy management server may receive information associated with VoIP sessions from one or more softswitches (*e.g.*, H.323 softswitches, SIP IP Multimedia Subsystem (IMS) softswitches) or session border controllers when a VoIP session is initialized or set up. In order to allow packets associated with such a VoIP session within a network protected by one or more packet security gateways associated with the security policy management server, the security policy management server may utilize the received information associated with the VoIP sessions to construct one or more rules for allowing the packets associated with the VoIP session. When the VoIP session is terminated or torn down, the softswitch or session border controller may notify the security policy management server, which may create or alter one or more rules to reflect the termination of the VoIP session (*e.g.*, to deny future packets which may match criteria previously associated with the VoIP session).

[0050] A dynamic security policy may also include one or more rules or rule sets, the combination of which may effectuate a phased restoration service within a network environment. Such a phased restoration service may be used in the event of a network attack (*e.g.*, a DDoS attack). When an attack occurs a network may be overwhelmed with network traffic and be unable to route all or any of the traffic. In the event of such an attack, it may be beneficial to utilize a dynamic security policy which effectuates a phased restoration service. Such a dynamic security policy may include one or more rules or rule sets configured for execution in time-shifted phases. Each of the rules or rule sets may specify progressively larger sets of network addresses. For example, a dynamic security policy may include three rules or rule sets which may be configured for execution in time-shifted phases. A first of the rules or rule sets may specify a relatively small set of network addresses for which packets should be forwarded (*e.g.*, network addresses

corresponding to mission critical network devices). A second of the rules or rule sets may specify a relatively larger set of network addresses for which packets should be forwarded (*e.g.*, network addresses corresponding to trusted network devices). A third of the rules or rule sets may specify an even larger set of network addresses for which packets should be forwarded (*e.g.*, network addresses corresponding to all network devices that would be allowed under ordinary circumstances). The dynamic security policy may specify that the rules or rule sets should be implemented in time-shifted phases. That is, the dynamic security policy may specify that the first rule or rule set should be executed first, and that the second rule or rule set should be executed at a time after the time at which the first rule or rule set is executed, and the third rule or rule set should be executed at a time after the time at which the second rule or rule set is executed. Such a dynamic security policy may assist a network in recovering from an attack, by allowing the network to isolate itself from the attack or recover in a controlled manner.

[0051] A dynamic security policy may also include one or more rules, the combination of which may effectuate an enqueueing service within a network environment. A dynamic security policy that effectuates an enqueueing service may include one or more rules that specify sets of network addresses and packet transformation functions that queue packets in one or more queues corresponding to the sets. These queues may then be serviced at varying rates. For example, a dynamic security policy may include two rules, each of which specify a set of network addresses. A first of the rules may specify that packets corresponding to its specified set should be queued in a first forwarding queue. A second of the rules may specify that packets corresponding to its specified set should be queued in a second forwarding queue. The first forwarding queue may be serviced at a higher forwarding rate than the second forwarding queue. Such an enqueueing service may be utilized during or following a network attack, or generally to provide prioritized service to critical network devices (*e.g.*, when network resources are strained). In some embodiments, one or more rules contained within a dynamic security policy may include an arbitrary selector which may correspond to one or more parameters or fields associated with a packet. For example, a dynamic security policy rule may include a Differentiated Service Code Point (DSCP) selector that corresponds to a DSCP field in an IP header. Thus, two packets having different values within the specified DSCP field may correspond to two distinct rules within a dynamic security policy and have different packet transformation functions performed on them. For example, two

otherwise identical packets having different values within the specified DSCP field may be queued in two different forwarding queues that have different forwarding rates, and may thus receive differentiated service.

[0052] A dynamic security policy may also include one or more rules, the combination of which may effectuate a multi-dimensional routing service or a multi-dimensional switching service within a network environment. For example, in some embodiments, a dynamic security policy may include one or more rules that specify a set of network addresses and an additional parameter. Such rules may further specify a packet transformation function configured to route packets within the specified set of network addresses that match the additional parameter to a network address distinct from the packets' respective destination network addresses. For example, the packet transformation function may be configured to encapsulate such packets (*e.g.*, as described by Internet Engineering Task Force (IETF) Request For Comment (RFC) 2003) with an IP header specifying a network address different from their respective destination addresses. The packets may then be routed to the network address specified by the encapsulating IP header, which may correspond to a network device configured to utilize such packets or data contained within them, strip the IP header from the packets, and forward the packets to their respective destination addresses. In some embodiments, the packet transformation function may be configured to alter or modify the destination address of the packets, which may then be routed to the altered or modified destination address. Additionally or alternatively, the packet transformation function may be configured to assign such packets to a particular Layer-2 VLAN (*e.g.*, as described by IEEE 802.1Q). The packets may then be switched to another device on the same VLAN, which may or may not be on the IP-layer path that the packet would have taken if it were routed according to the packet's destination IP address instead of being switched through the VLAN.

[0053] As will be described in greater detail below, in some embodiments a dynamic security policy may include one or more rules, the combination of which may effectuate an implementation of a multi-dimensional routing service for performing a monitoring service within a network environment. For example, a dynamic security policy may include one or more rules that specify a set of network addresses (*e.g.*, a set of network addresses from which a call that is to be monitored is expected to originate within) and an additional parameter (*e.g.*, a SIP URI corresponding to a caller to be monitored). As indicated above, such rules may further specify a packet transformation

function configured to route or switch packets within the specified set of network addresses that match the additional parameter (*e.g.*, the SIP URI) to a network address corresponding to a monitoring device. The network address corresponding to the monitoring device may be different from the packets' destination network address (*e.g.*, an address corresponding to the called party or a softswitch associated with the called party). For example, the packet transformation function may be configured to encapsulate the packets with an IP header specifying the network address corresponding to the monitoring device. The packets may then be routed (or rerouted) to the monitoring device, which may be configured to copy the packets or data contained within them (*e.g.*, for subsequent review by a law enforcement or national security authority), strip the IP header from them, and then forward the packets to their destination address (*e.g.*, the address corresponding to the called party or softswitch associated with the called party).

[0054] In some embodiments, a dynamic security policy may include one or more rules, the combination of which may effectuate an implementation of an informational service for performing a network communications awareness service, a network security awareness service, and/or a network threat awareness service (*e.g.*, for a particular network environment). For example, a dynamic security policy may include one or more rules that specify criteria such as one or more network addresses, protocol types, method types, and/or directions (*e.g.*, inbound, outbound, or the like) that are indicative of packet communications that are of interest to an organization that operates the secured network. Such rules may further specify a packet transformation function that, when applied to a packet that matches such a rule, produces a digest version, or log, of the packet. This packet log (or digest) may contain selected packet information and/or system information (*e.g.*, associated network addresses, ports, protocol types, URIs, arrival times, packet sizes, directions, interface names, media access control (MAC) addresses, matching rule IDs, metadata associated with matching rules, enforced policy names, or the like). The associated packet security gateway may store and/or forward packet logs using a logging system based on a standard (*e.g.*, syslog, or the like). Awareness application servers may read packet logs and perform various transformations on the logs to produce awareness information, which may be accessed by client applications.

[0055] As indicated above, a significant challenge associated with building a scalable proactive solution for protecting a secured network, is the need to filter substantially all network

traffic at a high resolution. Filtering traffic at a high resolution often requires the use of many rules. In a large network, where traffic volumes may be enormous, the time required to provide high resolution filtering (*e.g.*, the time required to apply a large number of rules to a large volume of traffic) has traditionally been thought to render proactive network protection solutions infeasible. This concern may be particularly acute in network environments that utilize low-latency applications (*e.g.*, VoIP).

[0056] Recent advances in packet filtering technology have reduced the time required to apply large rule sets to network traffic. For example, U.S. Patent Application Publication Nos. 2006/0195896 and 2006/0248580 to Fulp et al., and U.S. Patent Application Publication No. 2011/0055916 to Ahn, describe advanced packet filtering technologies, and are each incorporated by reference herein in their entireties.

[0057] One approach to providing high resolution filtering, while reducing the number of rules applied to network traffic, may be utilized when a dynamic security policy is combinatorially complete. For example, a dynamic security policy may be configured to allow bi-directional communication between a set of N internal hosts $\{I_1, I_2, \ldots, I_N\}$ within a protected network and a set of M external hosts $\{E_1, E_2, \ldots, E_M\}$ outside the protected network. To enable communications between the internal hosts and the external hosts, the dynamic security policy may be constructed to include a set of rules containing each possible combination of internal hosts and external hosts (*e.g.*,$\{\{I_1, E_1\}, \{I_1, E_2\}, \ldots \{I_1, E_M\}, \{I_2, E_1\}, \{I_2, E_2\}, \ldots \{I_2, E_M\}, \ldots, \{I_N, E_1\}, \{I_N, E_2\}, \ldots \{I_N, E_M\}\}$), each of the rules being associated with an allow packet transformation function. Such a dynamic security policy would have N*M rules for allowing communication between the internal hosts and the external hosts that originate from one of the internal hosts and are destined for one of the external hosts, and an additional N*M rules for allowing communications between the internal hosts and the external hosts that originate from one of the external hosts and are destined for one of the internal hosts. An equivalent result may be achieved, however, by constructing two smaller dynamic security policies: a first dynamic security policy that includes rules specifying the N internal hosts (*e.g.*, $\{\{I_1\}, \{I_2\}, \ldots, \{I_N\}\}$), each rule being associated with an accept packet transformation function; and a second dynamic security policy that includes rules specifying the M external hosts (*e.g.*, $\{\{E_1\}, \{E_2\}, \ldots, \{E_M\}\}$), each rule being

associated with an accept packet transformation function. Such a construct of dynamic security policies may be implemented using a system of packet security gateways configured in series.

[0058] FIG. 4 illustrates an exemplary configuration of multiple packet security gateways connected in series. Referring to FIG. 4, packet security gateway **112** may include one or more packet security gateways configured in series. For example, packet security gateway **112** may include packet security gateways 1 – N **400**, **402**, and **404**. Packet security gateways 1 – N **400**, **402**, and **404** may be configured so that packets forwarded by packet security gateway 1 **400** are received by packet security gateway 2 **402**, and packets forwarded by packet security gateway 2 **402** are received by the next packet security gateway in the series, all the way through packet security gateway N **404**. Each of packet security gateways 1 – N **400**, **402**, and **404** may include a packet filter, similar to packet filter **214** described above with respect to FIG. 2, and one or more packet transformation functions, similar to packet transformation functions 1 – N **216**, **218**, and **220** described above with respect to FIG. 2. Packet security gateways 1 – N **400**, **402**, and **404** may be utilized to implement a construct of dynamic security policies similar to that described above.

[0059] For example, packet security gateway 1 **400** may be configured to implement P_1, which may include rules specifying M external hosts (*e.g.*, $\{\{E_1\}, \{E_2\}, \ldots, \{E_M\}\}$), each rule being associated with an accept packet transformation function. Packet security gateway 2 **402** may be configured to implement P_2, which may include rules specifying N internal hosts (*e.g.*, $\{\{I_1\}, \{I_2\}, \ldots, \{I_N\}\}$), each rule being associated with an accept packet transformation function. A packet received by packet security gateway **112** may be initially received via packet security gateway 1 **400**'s network interface. Packet security gateway 1 **400** may apply one or more of the rules in P_1 to the received packet until the packet matches criteria specified by a rule in P_1, at which point packet security gateway 1 **400** may perform a packet transformation function specified by the rule on the packet. For example, a packet may be received by packet security gateway **112** that originates from external host E_5 (*e.g.*, a host within network E **110**) and is destined for internal host I_7 (*e.g.*, a host within network A **102**). Packet security gateway 1 **400** may apply one or more of the rules in P_1 (*e.g.*, $\{\{E_1\}, \{E_2\}, \ldots, \{E_M\}\}$) to the received packet and the received packet may match the criteria specified by one of the rules in P_1 (*e.g.*, $\{\{E_5\}$). The rule may specify that an accept packet transformation function should be performed, and packet security gateway 1 **400**

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may utilize one or more of its packet transformation functions to perform the accept packet transformation function on the packet and forward the packet to packet security gateway 2 **402**. Packet security gateway 2 **402** may apply one or more of the rules in P_2 (*e.g.*, $\{\{I_1\}, \{I_2\}, \ldots, \{I_N\}\}$) to the packet and the packet may match the criteria specified by one of the rules in P_2 (*e.g.*, $\{\{I_7\}\}$). The rule may specify that an accept packet transformation function should be performed, and packet security gateway 2 **402** may utilize one or more of its packet transformation functions to perform the accept packet transformation function on the packet and forward the packet to network A **102**.

[0060] It will be appreciated that utilizing multiple packet security gateways in series to implement dynamic security policy constructs may increase performance and decrease memory resource requirements. For example, in the described scenario packet security gateway 1 **400** may have only been required to compare the packet to five rules and packet security gateway 2 **402** may have only been required to compare the packet to seven rules. In a worst case scenario, packet security gateway 1 **400** may have only been required to compare the packet to M rules and packet security gateway 2 **402** may have only been required to compare the packet to N rules. Moreover, the series configuration may enable packet security gateway 1 **400** to begin implementing P_1 with respect to a subsequently received packet, while packet security gateway 2 **402** simultaneously implements P_2 with respect to the packet forwarded by packet security gateway 1 **400**. Furthermore, the memory requirements for this scenario with packet security gateways in series may be comparable to M+N, whereas originally the combinatorially complete set of rules contained in a single packet security gateway may have required memory comparable to N*M.

[0061] FIG. 5 illustrates an exemplary security policy management server. Referring to FIG. 5, security policy management server **120** may include processor **500**, memory **502**, and network interface **504**. One or more of processor **500**, memory **502**, and network interface **504** may be interconnected via data bus **506**. Network interface **504** may interface security policy management server **120** with network E **110**. Memory **502** may include one or more program modules that when executed by processor **500**, configure security policy management server **120** to perform functions described herein. It will be appreciated that as used herein the term "server" designates one or more computing devices configured to perform one or more functions described herein. The term "server" should not be construed to imply that a client/server relationship (*e.g.*, a

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relationship in which a request is received from a client and then serviced by a server) necessarily exists.

[0062] Security policy management server **120** may be configured to communicate one or more dynamic security policies to one or more packet security gateways within network environment **100**. For example, security policy management server **120** may communicate one or more dynamic security policies stored in memory **502** to one or more of packet security gateways **112**, **114**, **116**, and **118**. For example, security policy management server **120** may be configured to communicate one or more dynamic security policies to one or more of packet security gateways **112**, **114**, **116**, and **118** on a periodic basis, under specified network conditions, whenever security policy management server **120** receives a new dynamic security policy, whenever a dynamic security policy stored on security policy management server **120** is changed or altered, or in response to a request from one or more of packet security gateways **112**, **114**, **116**, and **118**.

[0063] Security policy management server **120** may also be configured to provide one or more administrators associated with security policy management server **120** with management interface **510**. For example, security policy management server **120** may be configured to provide one or more administrators with a Graphical User Interface (GUI) or Command Line Interface (CLI). An administrator of security policy management server **120** may utilize security policy management server **120**'s management interface **510** to configure security policy management server **120**. For example, an administrator may configure security policy management server **120** in order to associate security policy management server **120** with one or more of packet security gateways **112**, **114**, **116**, and **118**. An administrator of security policy management server **120** may also utilize security policy management server **120**'s management interface **510** to construct one or more dynamic security policies or to load one or more dynamic security policies into security policy management server **120**'s memory **502**. For example, an administrator associated with security policy management server **120** may manually construct one or more dynamic security policies offline and then utilize security policy management server **120**'s management interface **510** to load such dynamic security policies into security policy management server **120**'s memory **502**.

[0064] In some embodiments, security policy management server **120** may be configured to add, remove, or alter one or more dynamic security policies stored in memory **502** based on

information received from one or more devices within network environment **100**. For example, security policy management server **120**'s memory **502** may include a dynamic security policy having one or more rules that specify a list of network addresses known to be associated with malicious network traffic. Security policy management server **120** may be configured to automatically create or alter one or more of such rules as new network addresses associated with malicious network traffic are determined. For example, security policy management server **120** may receive updates (*e.g.* as part of a subscription) from malicious host tracker service **508**. Malicious host tracker service **508** may aggregate information associated with malicious network traffic and updates received from malicious host tracker service **508** may include one or more network addresses that have been determined to be associated with malicious network traffic. Security policy management server **120** may be configured to create or alter one or more rules included within a dynamic security policy associated with malicious host tracker service **508** to block traffic associated with the network addresses received from malicious host tracker service **508**. Additionally or alternatively, as indicated above, security policy management server **120** may be configured to create or alter one or more dynamic security policies, or one or more rules included in one or more dynamic security policies, to account for VoIP sessions being initiated or terminated by a network device within network environment **100**.

[0065] In some embodiments, security policy management server **120** may be configured to add, remove, and/or alter one or more dynamic security policies stored in memory **502** based on information received from two or more devices within network environment **100**. For example, security policy management server **120** may receive updates (*e.g.*, as part of a subscription) from malicious host tracker service **508** and/or one or more other services. The updates from the two or more services may be correlated (*e.g.*, by security policy management server **120**). For example, a network address received from host tracker service **508** may be a duplicate of a network address received from another (*e.g.*, different) service (*e.g.*, a range of network addresses received from host tracker service **508** may overlap with a range of network addresses received from another service). Security policy management server **120** may combine the rules associated with these correlated updates from two or more services within one or more dynamic security policies. Security policy management server **120** may be configured to reduce the size of and/or to de-correlate dynamic security policies (*e.g.*, because the performance of a packet security gateway

may be dependent on the size of and/or correlations within dynamic security policies). For example, duplicate network addresses may be removed, and/or overlapping ranges of network addresses may be combined into one or more new network address ranges.

[0066] As indicated above, a dynamic security policy may include one or more rules, the combination of which may effectuate an implementation of a multi-dimensional routing service for performing a monitoring service within a network environment. FIG. 6 illustrates an exemplary network environment for implementing a monitoring service in accordance with one or more embodiments. Referring to FIG. 6, a user of network environment **100** (*e.g.*, a law enforcement or national security authority) may desire to obtain a copy of packets associated with one or more VoIP sessions (*e.g.*, sessions associated with SIP URI exampleuser@exampledomain.com) within network environment **100**. Because many SIP-signaled services are designed to address sessions dynamically, it may not be possible to determine, prior to a session being set up, a particular network address and port from which packets should be copied. Moreover, due to privacy concerns, regulators may require that only packets associated with the specified VoIP sessions (*e.g.*, sessions associated with SIP URI exampleuser@exampledomain.com) be copied.

[0067] For example, a user associated with SIP URI exampleuser@exampledomain.com may utilize User Equipment (UE) **600** within network A **102** to place a VoIP call to a user utilizing UE **602** within network B **104**. SIP switch **604** may be utilized by an operator of network A **102** for switching SIP signals within network A **102**. Similarly, SIP switch **606** may be utilized by an operator of network B **104** for switching SIP signals within network B **104**. One or more of SIP switches **604** and **606** may include an analysis application configured to monitor SIP signals and publish SIP messages associated with specified users to one or more subscribers. For example, the operator of network A **102** may have installed analysis application **610** on SIP switch **604** (*e.g.*, accessed via a SIP IMS Service Control (ISC) interface associated with SIP switch **604**) and configured analysis application **610** to search for and publish SIP messages associated with SIP URI exampleuser@exampledomain.com to security policy management server **120**. Similarly, the operator of network B **104** may have installed analysis application **612** on SIP switch **606** and configured analysis application **612** to publish SIP messages associated with SIP URI exampleuser@exampledomain.com to security policy management server **120**.

[0068] When the user associated with SIP URI exampleuser@exampledomain.com utilizes UE **600** to place a VoIP call to the user utilizing UE **602**, analysis application **610** may detect one or more SIP signaling messages associated with the call (*e.g.*, SIP signaling messages for setting up the call) and publish the messages to security policy management server **120**. Security policy management server **120** may extract one or more network addresses and port numbers from the SIP signaling messages (*e.g.*, a network address and port number utilized by UE **600** for placing the VoIP call to UE **602**). Security policy management server **120** may utilize the extracted network addresses and port numbers to create a new dynamic security policy or alter one or more rules within an existing dynamic security policy. For example, security policy management server **120** may construct a new dynamic security policy that includes a rule specifying one of the extracted network addresses and port numbers, as well as a packet transformation function configured to route associated packets to monitoring device **608**. Security policy management server **120** may communicate the new or modified dynamic security policy to packet security gateway **112**.

[0069] When packets associated with the VoIP call between UE **600** and UE **602** are received by packet security gateway **112**, packet filter **214** may identify the packets as matching the criteria specified by the dynamic security policy received from security policy management server **120** (*e.g.*, packets addressed to or from the extracted address and port number) and may perform the packet transformation function configured to route the packets to monitoring device **608**. For example, the packet transformation function configured to route the packets to monitoring device **608** may be packet transformation function 2 **218**. When packet transformation function 2 **218** receives the packets from packet filter **214**, it may encapsulate them with an IP header having an address corresponding to monitoring device **608** and may then forward them to network E **110**. Once forwarded, the packets may be routed based on the address specified by the encapsulating header, and may thus be communicated to monitoring device **608**. When the packets are received by monitoring device **608**, monitoring device **608** may copy the packets or data contained within them, and strip the encapsulating header from them. Monitoring device **608** may then forward the packets, without the encapsulating header, to network E **110**. Network E **110** may receive the packets forwarded by monitoring device **608** and may route them based on their destination address (*e.g.*, to UE **602**).

[0070] In some embodiments, packet security gateway **112** may be configured to perform multiple packet transformation functions on the packets associated with the VoIP call between UEs **600** and **602**. For example, packet filter **214** may identify the packets as matching the criteria specified by the dynamic security policy received from security policy management server **120** and may forward the packets to packet transformation functions 1 **216** and 2 **218**. Packet transformation function 1 **216** may be configured to forward the packets to their destination address (*e.g.*, to UE **602**) and packet transformation function 2 **218** may be configured to encapsulate the packets (or a copy of the packets) with an IP header having an address corresponding to monitoring device **608** and then forward the encapsulated packets to network E **110**. Once forwarded, the encapsulated packets may be routed based on the address specified by the encapsulating header, and may thus be communicated to monitoring device **608**, which may store the packets or data contained within them for subsequent review or analysis (*e.g.*, by a law enforcement or national security authority). In such embodiments, it may not be necessary for monitoring device **608** to strip the encapsulating header from the packets or route them based on their destination address (*e.g.*, to UE **602**) because packet transformation function 1 **216** may have already forwarded the packets to their destination address (*e.g.*, to UE **602**).

[0071] It will be appreciated that SIP switch **604**'s analysis application **610** may similarly detect SIP signaling associated with the termination of the VoIP call between UE **600** and UE **602** and may publish the SIP messages to security policy management server **120**. Security policy management server **120** may utilize one or more network addresses and port numbers within the messages to construct a new dynamic security policy or modify one or more rules within an existing dynamic security policy and communicate the new or modified dynamic security policy to packet security gateway **112** in order to ensure that future packets associated with the network address and port number but not associated with SIP URI exampleuser@exampledomain.com are not routed to monitoring device **608**. Security policy management server **120** may communicate any dynamic security policy constructed or modified based on SIP messages to any of multiple packet security gateways (*e.g.*, packet security gateways **114** and **116**) within network environment **100** in order to ensure that all packets associated with the VoIP call between UE **600** and UE **602** are forwarded to monitoring device **608**.

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[0072] FIG. 7 illustrates an exemplary network environment that includes a secured network having multiple boundaries with unsecured networks in which one or more embodiments may be implemented. Network environment **700** may include networks A – C **702**, **704**, and **706**. Networks A **702** and B **704** may be a LAN or WAN associated with an organization (*e.g.*, a company, university, enterprise, or government agency). One or more networks within network environment **700** may interface with one or more other networks within network environment **700**. For example, the organizations associated with networks A **702** and B **704** may subscribe to an ISP to provide interconnectivity between their respective networks or allow public access to their respective networks (*e.g.*, via the Internet). Each of networks A **702** and B **704** may be connected to network C **706**, which may be the ISP's network. The ISP may desire to offer an interconnection service between networks A **702** and B **704**, but may also want to enforce one or more dynamic security policies with respect to traffic traversing network C **706**.Accordingly, one or more packet security gateways may be located at each boundary between network A **702** and network C **706**, and each boundary between network B **704** and network C **706**. For example, packet security gateway **708** and packet security gateway **710** may be respectively located at first and second boundaries between networks A **702** and C **706**. Similarly, packet security gateways **712** and **714** may be respectively located at first and second boundaries between networks B **704** and C **706**. Each of packet security gateways **708**, **710**, **712**, and **714** may be associated with security policy management server **716**.

[0073] Security policy management server **716** may maintain one or more dynamic security policies configured for protecting network C **706**, and may be managed by the ISP associated with network C **706**. Security policy management server **716** may ensure that each of packet security gateways **708**, **710**, **712**, and **714** protect each of their respective boundaries with network C **706** in a uniform manner. For example, security policy management server **716** may be configured to communicate one or more dynamic security policies it maintains to each of packet security gateways **708**, **710**, **712**, and **714** on a periodic basis, in response to being directed to by a network operator associated with network environment **700**, in response to detected network conditions (*e.g.*, an attack or high resource utilization), or in response to a request from one or more of packet security gateways **708**, **710**, **712**, or **714**.

[0074] In some embodiments, security policy management server **716** may be configured to communicate different dynamic security policies to one or more of packet security gateways **708**, **710**, **712**, and **714** based on, for example, their respective locations within network environment **700**. For example, security policy management server **716** may be configured to implement one or more anti-spoofing techniques (*e.g.*, ingress filtering or Best Current Practice (BCP) 38, as described by Internet Engineering Task Force (IETF) Request For Comment (RFC) 2827) with respect to network environment **700**. Effective implementation of such techniques may require that a dynamic security policy be based on the location at which it is being implemented. For example, a dynamic security policy that implements ingress filtering may comprise one or more rules that filter based on a packet's source address, identifying packets having source addresses that could not possibly have originated from a network downstream of the ingress filtering point (*e.g.*, packets having spoofed source addresses). Such rules may vary depending on the boundary point for which they are implemented (*e.g.*, a packet for one boundary may be properly identified as spoofed, yet a packet having the same source address may be legitimate traffic at a different boundary point). Accordingly, security policy management server **716** may be configured to communicate different dynamic security policies to one or more of packet security gateways **708**, **710**, **712**, and **714** based on their respective locations within network environment **700**. For example, security policy management server **716** may communicate a dynamic security policy to packet security gateways **708** and **710** that includes one or more rules for performing ingress filtering for network A **702** (*e.g.*, for identifying packets having source addresses that could not have originated within network A **702**) and a different dynamic security policy to packet security gateways **712** and **714** that includes one or more rules for performing ingress filtering for network B **704** (*e.g.*, for identifying packets having source addresses that could not have originated within network B **704**).

[0075] It will be appreciated that by maintaining uniform dynamic security policies at each boundary between networks A **702** and C **706**, as well as at each boundary between networks B **704** and C **706**, security policy management server **716** and packet security gateways **708**, **710**, **712**, and **714** may aid the ISP associated with network C **706** in protecting network C **706** from network attacks.

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[0076] FIG. 8 illustrates an exemplary network environment that includes multiple distinct secured networks in which one or more embodiments may be implemented. Referring to FIG. 8, network environment **800** may include networks A **802**, B **804**, and C **806**. Each of networks A **802** and B **804** may interface with network C **806** at multiple boundaries within network environment **800**. Packet security gateways **808** and **810** may be respectively located at first and second boundaries between networks A **802** and C **806**. Similarly, packet security gateways **812** and **814** may be respectively located at first and second boundaries between networks B **804** and C **806**.

[0077] Network A **802** and B **804** may both be associated with a common organization (*e.g.*, a company, university, enterprise, or government agency), or may each be associated with a distinct organization. In the former case, the common organization may desire to utilize one or more dynamic security policies with respect to network A **802** and one or more different dynamic security policies with respect to network B **804**. In the latter case, an organization associated with network A **802** may desire to utilize one or more dynamic security policies with respect to network A **802** and a different organization associated with network B **804** may desire to utilize one or more different dynamic security policies with respect to network B **804**. Network environment **800** may include security policy management servers A **816** and B **818**. Security policy management server A **816** may be associated with network A **802** and may maintain one or more dynamic security policies configured for protecting network A **802**. Similarly, security policy management server B **818** may be associated with network B **804** and may maintain one or more dynamic security policies configured for protecting network B **804**.

[0078] Packet security gateways **808** and **810** may be associated with security policy management server A **816**. Similarly, packet security gateways **812** and **814** may be associated with security policy management server B **818**. Security policy management server A **816** may ensure that packet security gateways **808** and **810** protect each of their respective boundaries with network C **806** in a uniform manner. For example, security policy management server A **816** may be configured to communicate one or more dynamic security policies it maintains to packet security gateways **808** and **810** on a periodic basis, in response to being directed to by a network operator associated with network A **802**, in response to detected network conditions (*e.g.*, an attack or high resource utilization), or in response to a request from packet security gateway **808** or **810**.

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Similarly, security policy management server B **818** may ensure that packet security gateways **812** and **814** protect each of their respective boundaries with network C **806** in a uniform manner. For example, security policy management server B **818** may be configured to communicate one or more dynamic security policies it maintains to packet security gateways **812** and **814** on a periodic basis, in response to being directed to by a network operator associated with network B **804**, in response to detected network conditions (*e.g.*, an attack or high resource utilization), or in response to a request from packet security gateway **812** or **814**. By utilizing distinct security policy management servers (*e.g.*, security policy management servers A **816** and B **818**), one or more operators associated with distinct networks (*e.g.*, networks A **802** and B **804**) may maintain uniform dynamic security policies at each boundary of their respective networks, while simultaneously enabling different dynamic security policies to be maintained for each network. Similarly, by utilizing distinct security policy management servers (*e.g.*, security policy management servers A **816** and B **818**), one or more operators associated with a single organization that desires to maintain distinct networks (*e.g.*, networks A **802** and B **804**) may maintain uniform dynamic security policies at each boundary of their distinct networks, while simultaneously enabling different dynamic security policies to be maintained for each network.

[0079] FIG. 9 illustrates an exemplary secure LAN environment protected in accordance with one or more aspects of the disclosure. Referring to FIG. 9, network environment **900** may be a LAN, including hosts A **902**, B **904**, and C **906**. It may also include LAN switch **908**. LAN switch **908** may be configured to switch network traffic (*e.g.*, packets) between one or more of hosts A **902**, B **904**, and C **906**. For example, LAN switch **908** may include a switching matrix configured to switch packets received from one or more of hosts A **902**, B **904**, and C **906** to one or more of hosts A **902**, B **904**, and C **906**. LAN switch **908** may be associated with packet security gateway **910**, and network environment **900** may include security policy management server **912**.

[0080] In some embodiments, packet security gateway **910** may be embedded within LAN switch **908**. Alternatively, packet security gateway **910** may be a device distinct from LAN switch **908**, and LAN switch **908** may be configured to route network traffic through packet security gateway **910** (*e.g.*, by modifying LAN switch **908**'s switching matrix). Packet security gateway **910** may be configured to receive one or more dynamic security policies from security policy management server **912**. The dynamic security policies received from security policy management

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server **912** may include one or more rules specifying criteria associated with one or more of hosts A **902**, B **904**, and C **906**, and may further specify one or more packet transformation functions to be performed on packets matching the specified criteria. Packet security gateway **910** may identify packets matching one or more of the criteria specified by the rules and may perform the associated packet transformation functions on the identified packets. By utilizing packet security gateway **910** within network environment **900**, an operator of network environment **900** may be able to protect network environment **900** from network attacks, as well as implement one or more services (*e.g.*, blocklist service, allowlist service, VoIP firewall service, phased restoration service, enqueueing service, multi-dimensional routing service, or monitoring service) within network environment **900**. Network environment **900** may include multiple LAN switches with embedded or associated packet security gateways, each of the packet security gateways configured to receive one or more dynamic security policies from security policy management server **912**.

[0081] FIG. 10 illustrates an exemplary method for protecting a secured network in accordance with one or more embodiments. The steps may be performed at each of one or more packet security gateways associated with a security policy management server. For example, each of packet security gateways **112**, **114**, **116**, and **118** may be associated with security policy management server **120**, and the steps may be performed at each of packet security gateways **112**, **114**, **116**, and **118**. At step **1000**, a dynamic security policy is received from the security policy management server. For example, packet security gateway **112** may receive dynamic security policy **300** from security policy management server **120**. At step **1002**, packets associated with a network protected by each respective packet security gateway are received. For example, packet security gateway **112** may receive UDP packets from a device within network E **110** having an address that begins with 150 and that are destined for port 3030 of a device within network A **102**. At step **1004**, a packet transformation function specified by the dynamic security policy is performed on the packets. For example, rule **308** of dynamic security policy **300** may specify that packets using the UDP protocol, coming from a source address that begins with 150, having any source port, destined for any address, and destined for port 3030 should have an accept packet transformation function performed on them, packet filter **214** may identify the UDP packets received from the device within network E **110** as matching the criteria specified by rule **308**, packet transformation function 1 **216** may be configured to forward packets, and packet security gateway **112** may utilize packet

transformation function 1 **216** to perform the accept packet transformation function specified by rule **308** on the UDP packets received from the device within network E **110**.

[0082] FIG. 11 illustrates an exemplary method for protecting a secured network that includes identifying packets based on application-layer packet-header information. Referring to FIG. 11, at step **1102**, a plurality of packet security gateways associated with a security policy management server may receive a dynamic security policy that includes at least one rule specifying application-layer packet-header information and a packet transformation function to be performed on packets comprising the application-layer packet-header information. For example, packet security gateways **112**, **114**, **116**, and **118** may be associated with security policy management server **120** and may receive a dynamic security policy that includes one or more rules specifying application-layer packet-header information (*e.g.*, information that identifies one or more HTTP packets) and a packet transformation function to be performed on packets comprising the application-layer packet-header information (*e.g.*, an accept or deny packet transformation function) from security policy management server **120**. At step **1104**, a packet security gateway, of the plurality of packet security gateways associated with the security policy management server, may receive packets associated with a network protected by the packet security gateway. For example, packet security gateway **112** may receive packets associated with network A **102** (*e.g.*, from a computing device located in network A **102**, network B **104**, network C **106**, network D **108**, and/or network E **110**).

[0083] At step **1106**, the packet security gateway may identify, from amongst the packets associated with the network protected by the packet security gateway, and on a packet-by-packet basis, one or more packets comprising the application-layer packet-header information. For example, in some embodiments, the rule(s) specifying the application-layer packet-header information may identify one or more HTTP packets (*e.g.*, one or more HTTP packets comprising an HTTP GET method call and/or an HTTP PUT method call), and packet security gateway **112** may identify, from amongst the packets associated with network A **112**, one or more packets comprising the application-layer packet-header information. In some embodiments, identifying the packets comprising the application-layer packet-header information may include the packet security gateway determining that the packets are among the HTTP packets identified by the rule(s) (*e.g.*, the HTTP GET method call and/or the HTTP PUT method call may specify one or more URIs, and packet security gateway **112** may determine that the packet(s) originated from and/or

are destined for a network address corresponding to the URI(s)). At step **1108**, the packet security gateway may perform, on a packet-by-packet basis, the packet transformation function on the identified packet(s). For example, if the packet transformation function is an accept packet transformation function, packet security gateway **112** may forward the packet(s) toward their respective destinations. Similarly, if the packet transformation function is a deny packet transformation function, packet security gateway **112** may drop the packet(s).

[0084] FIG. 12 illustrates an exemplary method for protecting a secured network that includes performing a packet digest logging function on packets that correspond to specified packet-identification criteria. Referring to FIG. 12, at step **1202**, each of a plurality of packet security gateways associated with a security policy management server may receive a dynamic security policy that includes at least one rule specifying packet-identification criteria and a packet transformation function comprising a packet digest logging function to be performed on packets corresponding to the packet-identification criteria from the security policy management server. For example, packet security gateways **112**, **114**, **116**, and **118** may be associated with security policy management server **120** and may receive a dynamic security policy that includes one or more rules specifying packet-identification criteria (*e.g.*, application-layer packet-header information and/or a five-tuple specifying one or more transport-layer protocols, a range of source addresses, a range of source ports, a range of destination addresses, and a range of destination ports) and a packet transformation function comprising a packet digest logging function to be performed on packets corresponding to the packet-identification criteria from security policy management server **120**. At step **1204**, a packet security gateway, of the plurality of packet security gateways associated with the security policy management server, may receive packets associated with a network protected by the packet security gateway. For example, packet security gateway **112** may receive packets associated with network A **102** (*e.g.*, from a computing device located in network A **102**, network B **104**, network C **106**, network D **108**, and/or network E **110**).

[0085] At step **1206**, the packet security gateway may identify from amongst the packets associated with the network protected by the packet security gateway, and on a packet-by-packet basis, one or more packets corresponding to the packet-identification criteria. For example, packet security gateway **112** may identify from amongst the packets associated with network A **102** one or more packets corresponding to the packet-identification criteria (*e.g.*, by determining that the

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packet(s) comprise the specified application-layer packet-header information and/or correspond to at least one of the specified transport-layer protocols, have a source address within the specified range of source addresses, have a source port within the specified range of source ports, have a destination address within the specified range of destination addresses, and/or have a destination port within the specified range of destination ports). At step **1208**, the packet security gateway may perform, on a packet-by-packet basis, the packet digest logging function on each of the packets corresponding to the packet-identification criteria. For example, packet security gateway **112** may perform the packet digest logging function on each of the identified packets.

[0086] In some embodiments, performing the packet digest logging function may include identifying a subset of information specified by the packet digest logging function (*e.g.*, a portion of data from the packet, a source address of the packet, a source port of the packet, a destination address of the packet, a destination port of the packet, a transport-protocol type of the packet, a uniform resource identifier (URI) from the packet, an arrival time of the packet, a size of the packet, a flow direction of the packet, an identifier of an interface of the packet security gateway that received the packet, and/or one or more media access control (MAC) addresses associated with the packet) for each of the identified packets, and generating a record comprising the subset of information for each of the identified packets. In some embodiments, packet security gateway **112** may be configured to temporarily store data comprising the subset of information for each of the identified packets, and to utilize the stored data to generate a message comprising the subset of information (or a portion thereof) for each of the identified packets. In such embodiments, packet security gateway **112** may communicate the message to a different computing device (*e.g.*, security policy management server **120**). In some embodiments, the subset of information (or a portion thereof) may be reformatted (*e.g.*, by packet security gateway **112** and/or security policy management server **120**) in accordance with a logging system standard (*e.g.*, syslog).

[0087] FIG. 13 illustrates an exemplary method for protecting a secured network that includes receiving security updates from multiple sources. Referring to FIG. 13, at step **1302**, a security policy management server may receive a security update comprising a set of network addresses from a computing device. For example, security policy management server **120** may receive a security update comprising a set of network addresses *(e.g.*, {network address A, network address B, and network address C}) from malicious host tracker service **508** (or a computing device

associated therewith). At step **1304**, the security policy management server may update one or more rules stored in its memory to include the set of network addresses. For example, security policy management server **120** may update one or more rules of dynamic security policy **300** (*e.g.*, a rule specifying a deny packet transformation function) to include the set of network addresses (*e.g.*, network addresses A, B, and C). At step **1306**, the security policy management server may receive a security update comprising a different set of network addresses from a different computing device. For example, security policy management server **120** may receive a security update comprising a different set of network addresses (*e.g.*, {network address B, network address C, network address D, and network address E}) from a different computing device (*e.g.*, a different computing device associated with malicious host tracker service **508** or a computing device associated with a malicious host tracker service different from malicious host tracker service **508**).

[0088] At step **1308**, the security policy management server may determine that the different set of network addresses includes at least a portion of network addresses included in the set of network addresses, and, at step **1310**, may identify the at least a portion of network addresses included in the set of network addresses. For example, security policy management server **120** may determine that the different set of network address (*e.g.*, {network address B, network address C, network address D, and network address E}) includes at least a portion of network addresses (*e.g.*, network addresses B and C) included in the set of network addresses (*e.g.*, {network address A, network address B, and network address C}), and may identify the at least a portion of network addresses included in the set of network addresses (*e.g.*, network addresses B and C). At step **1312**, the security policy management server may identify at least one of the rules stored in its memory that specifies a range of network addresses comprising the at least a portion of network addresses. For example, security policy management server **120** may identify the rule(s) of dynamic security policy **300** updated in step **1304** (*e.g.*, the rule(s) updated to include network addresses A, B, and C). At step **1314**, the security policy management server may update the identified rule(s) to include one or more other network addresses included in the different set of network addresses. For example, security policy management server **120** may update the identified rules of dynamic security policy **300** to include one or more other network addresses included in the different set of network addresses (*e.g.*, network addresses D and E).

[0089] In some embodiments, the security policy management server may identify two or more rules that each specify a range of network addresses comprising the at least a portion of network addresses. For example, security policy management server **120** may identify two rules of dynamic security policy **300** that each include the at least a portion of network addresses (*e.g.*, a rule that includes network addresses A, B, C, and F, and a rule that includes network addresses A, B, C, and G). In such embodiments, the security policy management server may combine the two or more rules into a rule that specifies a range of network addresses that includes network addresses specified by each of the two or more rules and the one or more other network addresses included in the different set of network addresses. For example, security policy management server **120** may combine the two rules of dynamic security policy **300** that each include the at least a portion of network addresses (*e.g.*, the rule that includes network addresses A, B, C, and F, and the rule that includes network addresses A, B, C, and G) into a rule that specifies a range of network addresses that includes network addresses specified by each of the two identified rules and the one or more other network addresses included in the different set of network addresses (*e.g.*, a range that includes network addresses A, B, C, D, E, F, and G).

[0090] The functions and steps described herein may be embodied in computer-usable data or computer-executable instructions, such as in one or more program modules, executed by one or more computers or other devices to perform one or more functions described herein. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types when executed by one or more processors in a computer or other data processing device. The computer-executable instructions may be stored on a computer-readable medium such as a hard disk, optical disk, removable storage media, solid state memory, RAM, etc. As will be appreciated, the functionality of the program modules may be combined or distributed as desired in various embodiments. In addition, the functionality may be embodied in whole or in part in firmware or hardware equivalents, such as integrated circuits, application-specific integrated circuits (ASICs), field programmable gate arrays (FPGA), and the like. Particular data structures may be used to more effectively implement one or more aspects of the disclosure, and such data structures are contemplated to be within the scope of computer executable instructions and computer-usable data described herein.

[0091] Although not required, one of ordinary skill in the art will appreciate that various aspects described herein may be embodied as a method, an apparatus, or as one or more computer-readable media storing computer-executable instructions. Accordingly, those aspects may take the form of an entirely hardware embodiment, an entirely software embodiment, an entirely firmware embodiment, or an embodiment combining software, hardware, and firmware aspects in any combination.

[0092] As described herein, the various methods and acts may be operative across one or more computing servers and one or more networks. The functionality may be distributed in any manner, or may be located in a single computing device (*e.g.*, a server, a client computer, etc.).

[0093] Aspects of the disclosure have been described in terms of illustrative embodiments thereof. Numerous other embodiments, modifications, and variations within the scope and spirit of the appended claims will occur to persons of ordinary skill in the art from a review of this disclosure. For example, one of ordinary skill in the art will appreciate that the steps illustrated in the illustrative figures may be performed in other than the recited order, and that one or more steps illustrated may be optional.

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CLAIMS

What is claimed is:

1. A method of filtering packets at a packet security gateway configured for protection of a network, wherein the packet security gateway is capable of receiving a plurality of dynamic security policies and is associated with a security policy management server external from the network, the method comprising:

receiving, by the packet security gateway and from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service; and

performing, based on the packet filtering rules, packet filtering on individual packets of the plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on the content determined from the inspection of that individual packet.

2. The method of claim 1, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

3. The method of claim 1, wherein at least one packet transformation function comprises a network protection action.

4. The method of claim 1, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the method further comprises:

sending, by the packet security gateway, the first plurality of packets in the first forwarding queue; and

sending, by the packet security gateway, the second plurality of packets in the second forwarding queue.

5. The method of claim 1, further comprising:

receiving, by the packet security gateway and using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

performing at least one packet transformation function at the network layer.

6. The method of claim 1, wherein the packet security gateway is a LAN switch.

7. The method of claim 1, wherein the filtering each packet comprises:

filtering one packet at a time; and

performing a packet digest logging function with respect to each filtered packet.

8. The method of claim 7, wherein, the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

9. A packet security gateway configured for protection of a network, capable of receiving a plurality of dynamic security policies and associated with a security policy management server external from the network, the packet security gateway comprising:

at least one processor; and

memory comprising instructions that, when executed by the last least one processor, cause the packet security gateway to:

receive, from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service; and

perform, based on the packet filtering rules, packet filtering on individual packets of the plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on the content determined from the inspection of that individual packet.

10. The packet security gateway of claim 6, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

11. The packet security gateway of claim 6, wherein at least one packet transformation function comprises a network protection action.

12. The packet security gateway of claim 6, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

13. The packet security gateway of claim 6, wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

perform at least one packet transformation function at the network layer.

14. The packet security gateway of claim 6, wherein the packet security gateway is a LAN switch.

15. The packet security gateway of claim 6, wherein the instructions, when executed by the at least one processor, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

16. The packet security gateway of claim 15, wherein the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

17. One or more non-transitory computer-readable media comprising instructions that, when executed by one or more processors of a packet security gateway configured to protect a network, cause the packet security gateway to:

receive, from the security policy management server, a dynamic security policy comprising packet filtering rules, wherein the packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and wherein one or both of the dynamic security policy or one or more of the packet filtering

rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service; and

perform, based on the packet filtering rules, packet filtering on individual packets of the first plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on the content determined from the inspection of that individual packet.

18. The one or more non-transitory computer-readable media of claim 17, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

19. The one or more non-transitory computer-readable media of claim 17, wherein at least one packet transformation function comprises a network protection action.

20. The one or more non-transitory computer-readable media of claim 17, wherein the first dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

21. The one or more non-transitory computer-readable media of claim 17, wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

perform at least one packet transformation function at the network layer.

22. The one or more non-transitory computer-readable media of claim 17, wherein the packet security gateway is a LAN switch.

23. The one or more non-transitory computer-readable media of claim 17, wherein the instructions, when executed by the one or more processors of the packet security gateway, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

24. The one or more non-transitory computer-readable media of claim 23, wherein the packet digest logging function comprises:

identifying a subset of information in the packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

25. A system comprising:

a security policy management server external from a network associated with a packet security gateway, wherein the security policy management server comprises:

one or more first processors; and

first memory storing first instructions that, when executed by one or more first processors, cause the security policy management server to:

receive, from a malicious host tracker service, first malicious traffic information;

automatically create, based on the malicious traffic information, a dynamic security policy or patent filtering rules of the dynamic security policy,

wherein the patent filtering rules comprise one or more packet matching criteria comprising a corresponding network addresses and one or more corresponding packet transformation functions;

a packet security gateway configured for protection of a network and associated with the security policy management server external from the network, the packet security gateway comprising:

one or more second processors; and

second memory storing second instructions that, when executed by one or more second processors, cause the packet security gateway to:

receive, from the security policy management server, the dynamic security policy comprising the packet filtering rules, wherein the first packet filtering rules comprise at least one packet matching criterion and a corresponding packet transformation function, and wherein one or both of the dynamic security policy or one or more of the packet filtering rules of the dynamic security policy were automatically created or altered, by the security policy management server, based on malicious traffic information received from a malicious host tracker service; and

perform, based on the packet filtering rules, packet filtering on individual packets of the plurality of packets associated with the network protected by the packet security gateway, wherein the packet filtering comprises:

inspecting individual packets; and

filtering each packet based on the content determined from the inspection of that individual packet.

26. The system of claim 25, wherein the at least one packet matching criterion comprises at least one network address associated with an indication of malicious network traffic.

27. The system of claim 25, wherein at least one packet transformation function comprises a network protection action.

28. The system of claim 25, wherein the dynamic security policy specifies that a first plurality of packets should be placed in a first forwarding queue and a second plurality of packets should be placed in a second forwarding queue, wherein the first forwarding queue has a higher forwarding rate than the second forwarding queue, and wherein the second instructions, when executed by the one or more second processors, further cause the packet security gateway to:

send the first plurality of packets in the first forwarding queue; and

send the second plurality of packets in the second forwarding queue.

29. The system of claim 25, wherein the second instructions, when executed by the one or more second processors, further cause the packet security gateway to:

receive, using an interface that is not addressed at the network layer, packets in a network layer transparent manner; and

performing at least one packet transformation function at the network layer.

30. The system of claim 25, wherein the packet security gateway is a LAN switch.

31. The system of claim 25, wherein the second instructions, when executed by the one or more second processors, cause the packet security gateway to:

filter one packet at a time; and

perform a packet digest logging function with respect to each filtered packet.

32. The system of claim 31, wherein, the packet digest logging function comprises:

identifying a subset of information in each packet that is also specified by the packet digest logging function;

generating, for each packet, a record comprising the subset of information;

reformatting, for each packet, the subset of information according to a logging system standard; and

routing, based on the subset of information in the identified packet, each packet to a monitoring device.

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33. The system of claim 25, wherein the first instructions, when executed by the one or more first processors, cause the security policy management server to receive malicious traffic information from more than one host tracker service.

34. The system of claim 25, wherein the first instructions, when executed by the one or more first processors, cause the security policy management server to:

add, remove or alter the one or more rules of the first or second dynamic security policy based, at least in part, on making a correlation between the malicious traffic information received from the different host tracker services.

35. The system of claim 25, wherein at least one packet transformation function is configured to route associated packets to a monitoring device.

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Abstract

Methods and systems for protecting a secured network are presented. For example, one or more packet security gateways may be associated with a security policy management server. At each packet security gateway, a dynamic security policy may be received from the security policy management server, packets associated with a network protected by the packet security gateway may be received, and at least one of multiple packet transformation functions specified by the dynamic security policy may be performed on the packets.

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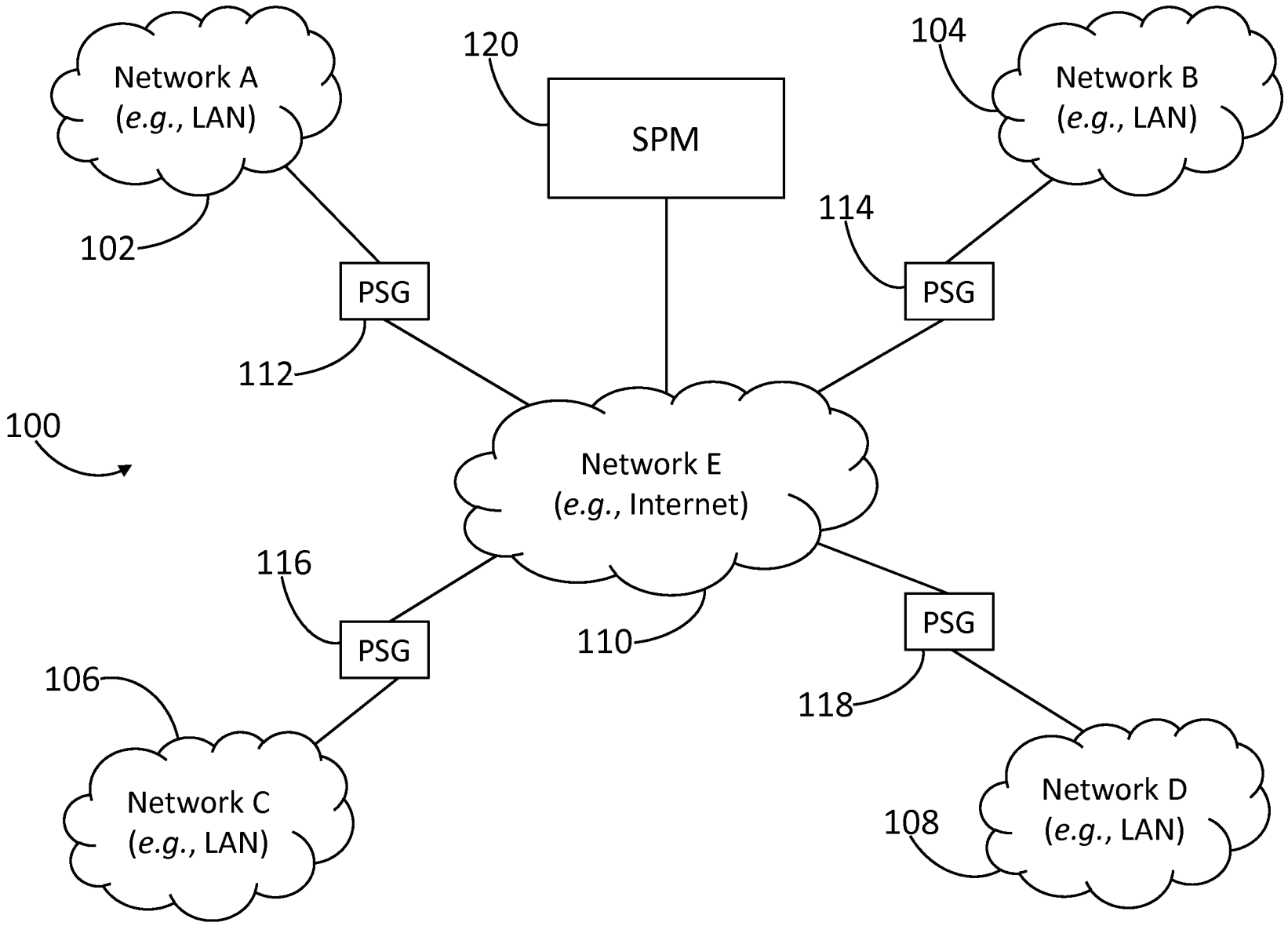

Network A
(e.g., LAN)
102
120
SPM
104
Network B
(e.g., LAN)
114
PSG
PSG
112
100
Network E
(e.g., Internet)
116
PSG
110
PSG
106
118
Network C
(e.g., LAN)
Network D
(e.g., LAN)
108

FIG. 1

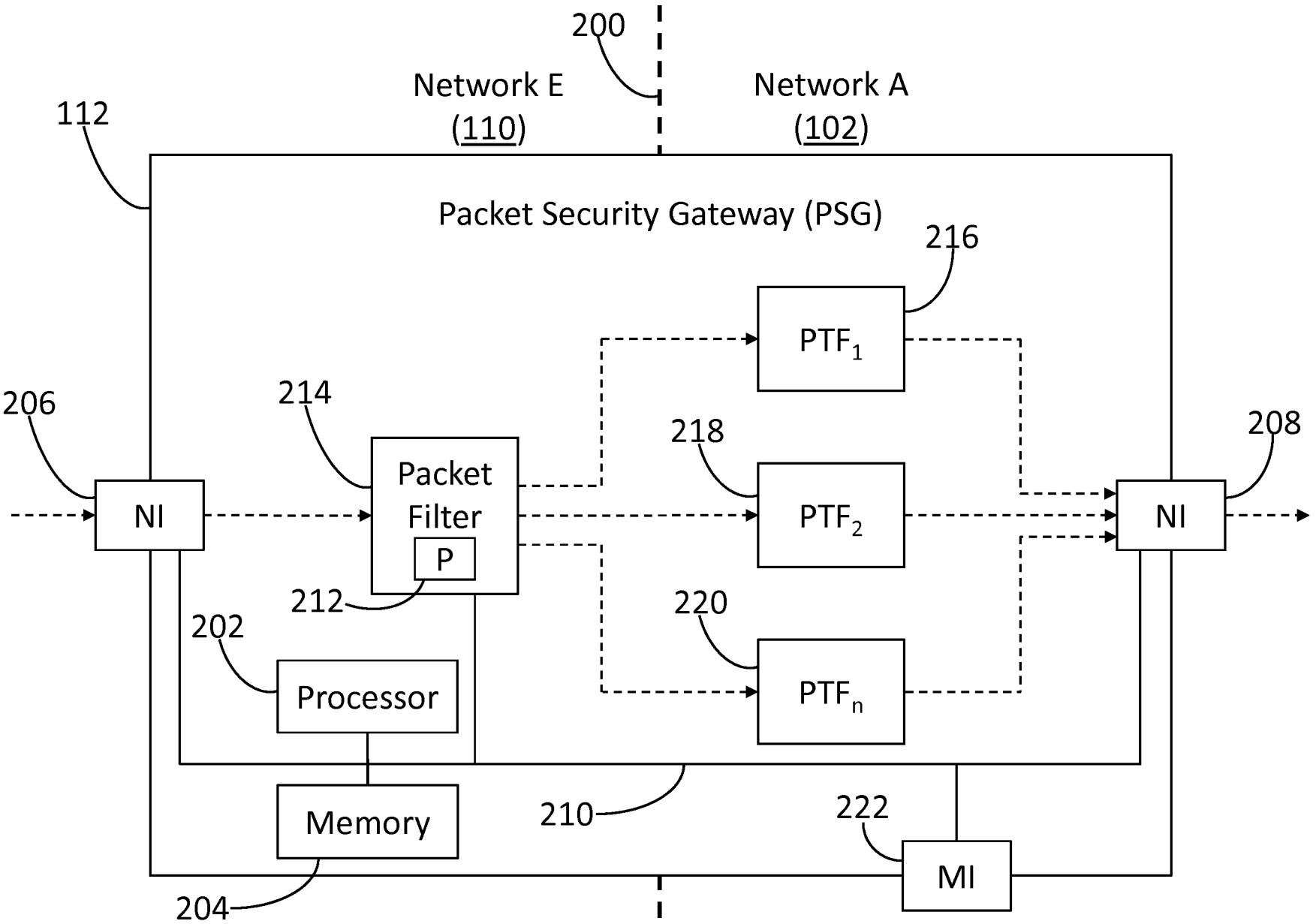
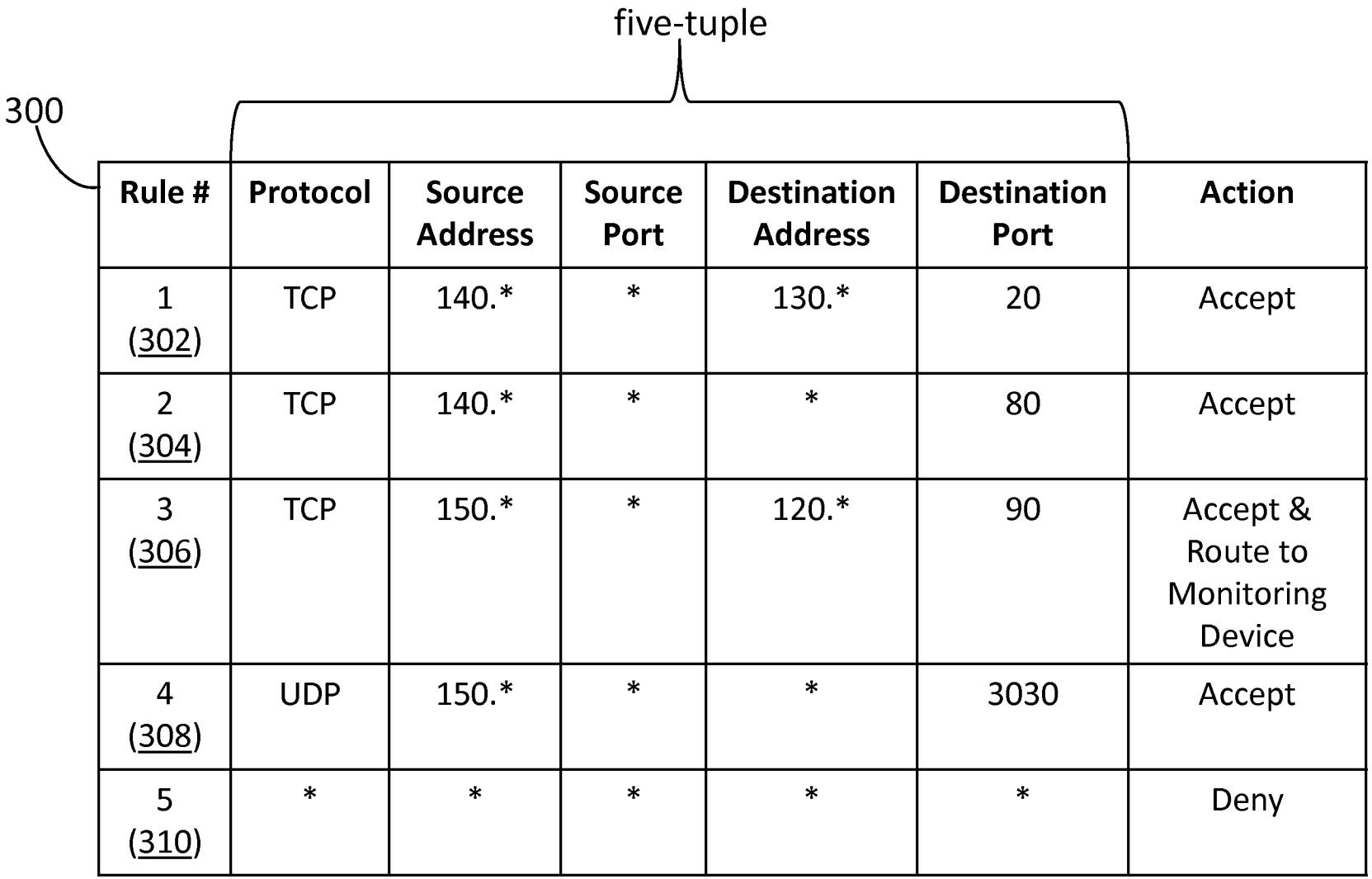

200
Network E
(110)
Network A
(102)
112
Packet Security Gateway (PSG)
216
PTF1
206
214
218
208
Packet
Filter
NI
PTF2
NI
P
212
220
202
Processor
PTFn
Memory
210
222
MI
204

FIG. 2



Rule #	Protocol	Source Address	Source Port	Destination Address	Destination Port	Action
1 (302)	TCP	140.*	*	130.*	20	Accept
2 (304)	TCP	140.*	*	*	80	Accept
3 (306)	TCP	150.*	*	120.*	90	Accept & Route to Monitoring Device
4 (308)	UDP	150.*	*	*	3030	Accept
5 (310)	*	*	*	*	*	Deny

FIG. 3

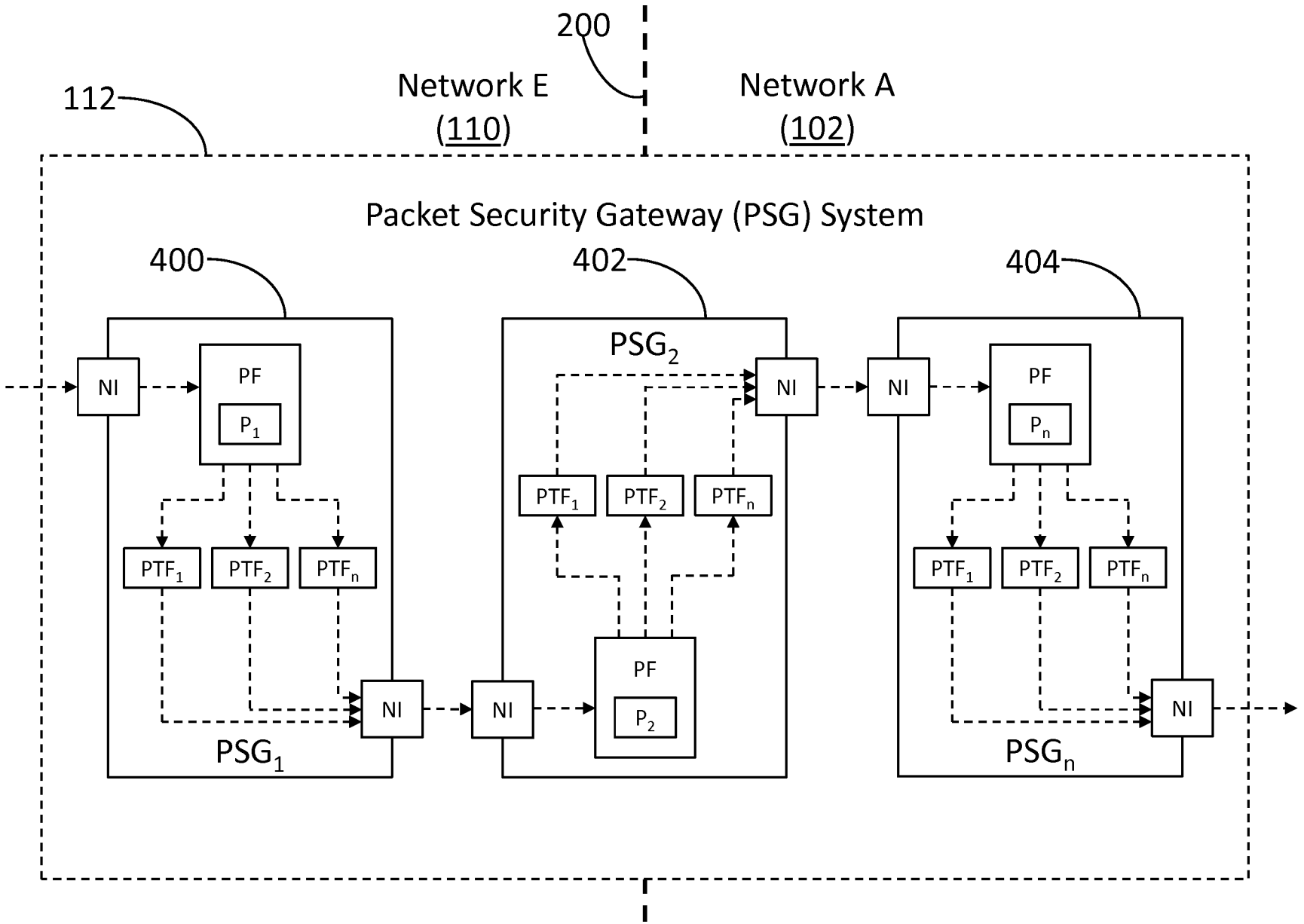

200
Network E
(110)
Network A
(102)
112
Packet Security Gateway (PSG) System
400
402
404
NI
PF
P1
PTF1
PTF2
PTFn
PSG1
PSG2
P2
Pn
PSGn

FIG. 4

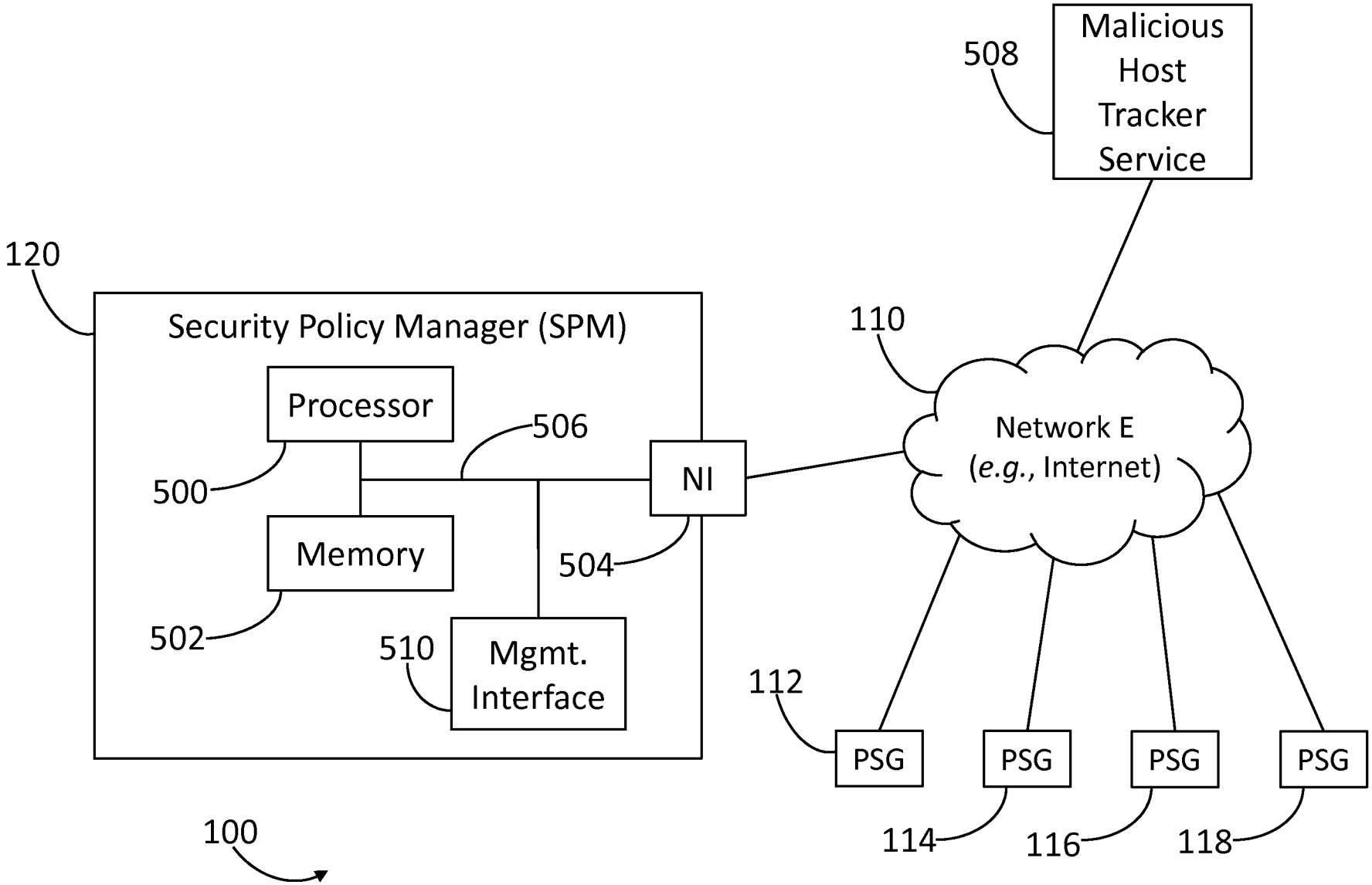

Malicious Host Tracker Service
508
120
Security Policy Manager (SPM)
110
Processor
506
Network E
(e.g., Internet)
500
NI
Memory
504
502
510
Mgmt. Interface
112
PSG
PSG
PSG
PSG
114
116
118
100

FIG. 5

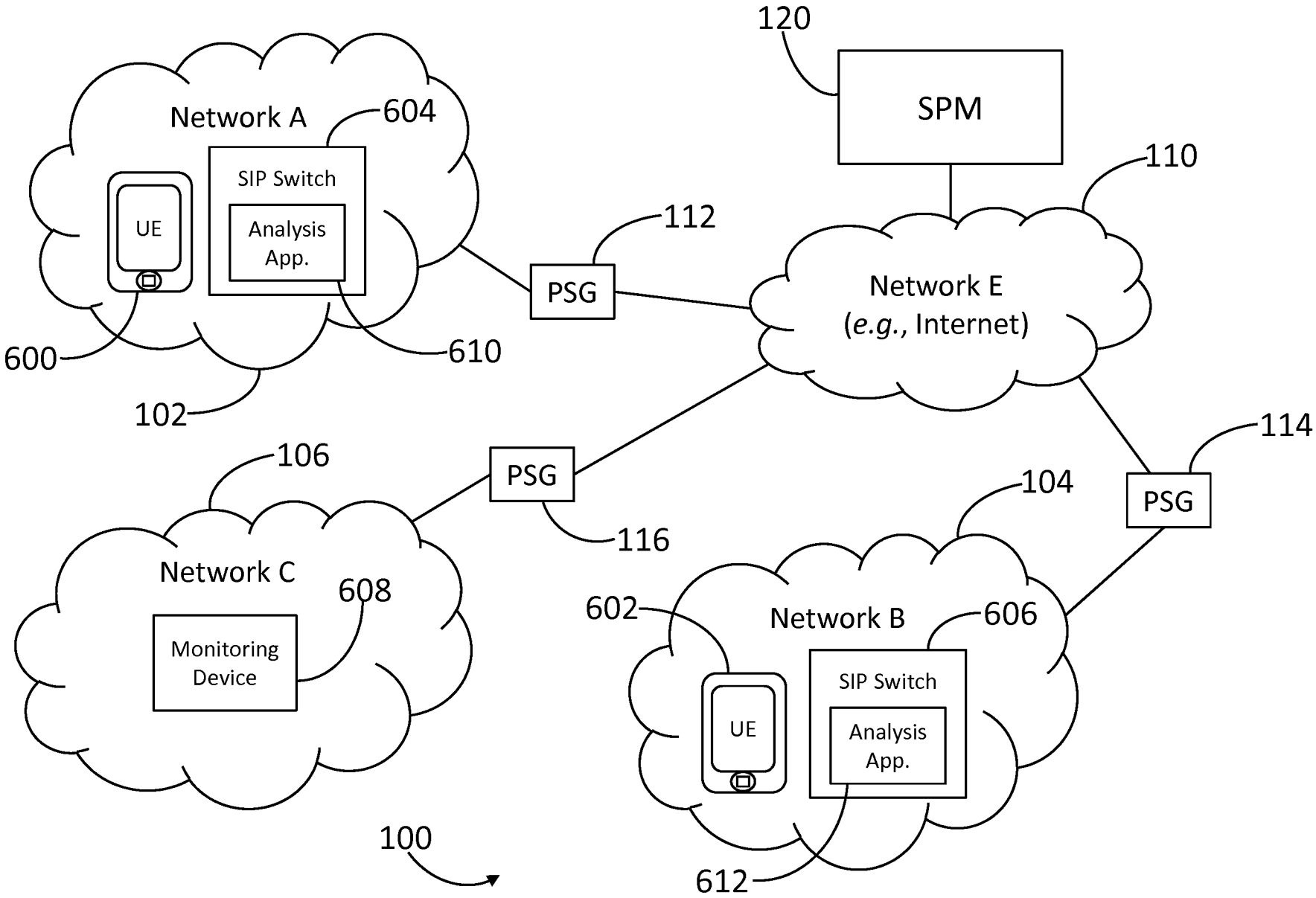

120
SPM
Network A
604
SIP Switch
UE
Analysis App.
110
112
PSG
Network E
(e.g., Internet)
600
610
102
114
106
PSG
104
PSG
116
Network C
608
Monitoring Device
602
Network B
606
SIP Switch
UE
Analysis App.
100
612

FIG. 6

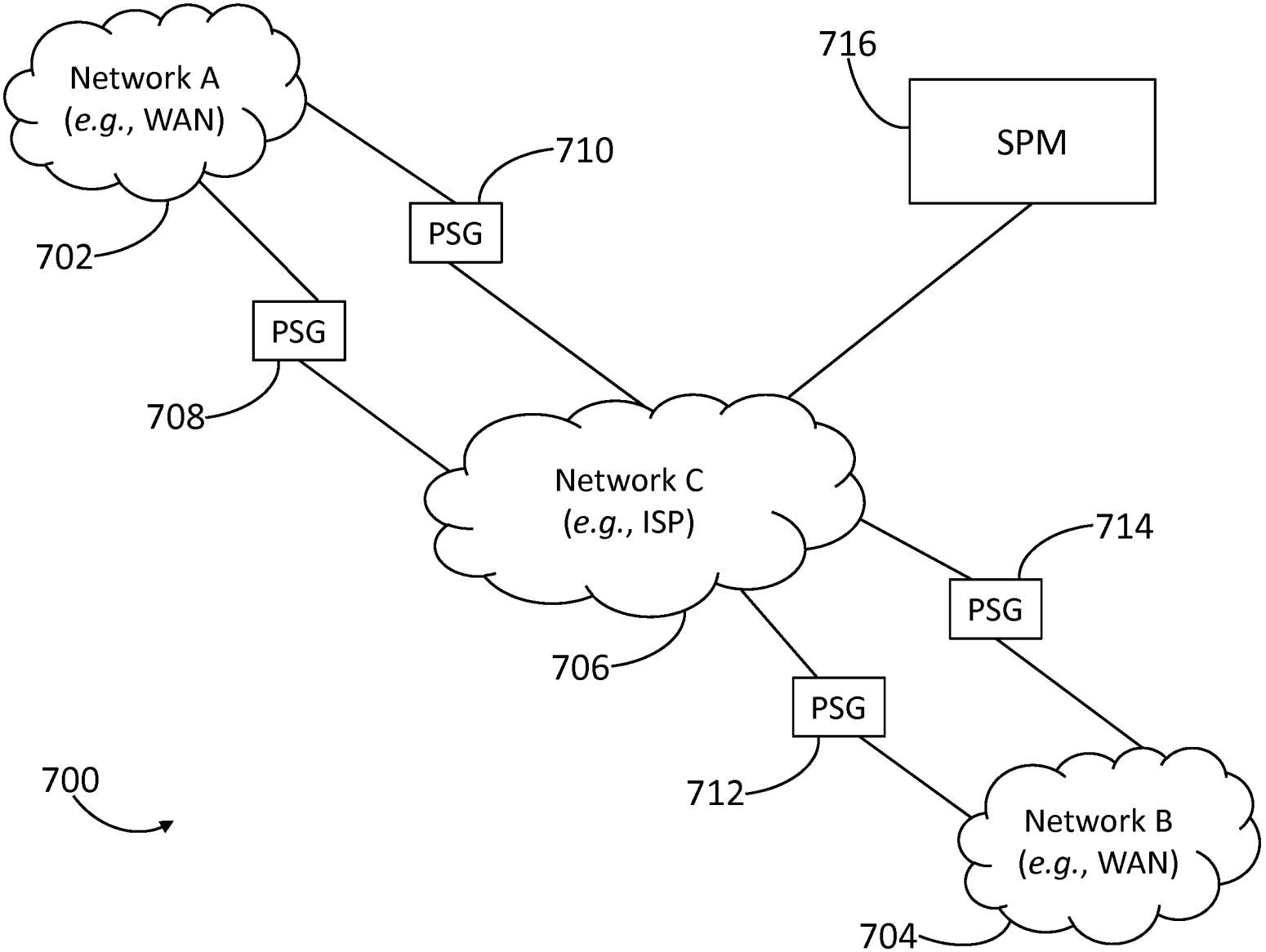

Network A
(e.g., WAN)
702
710
PSG
716
SPM
PSG
708
Network C
(e.g., ISP)
706
714
PSG
PSG
712
700
Network B
(e.g., WAN)
704

FIG. 7

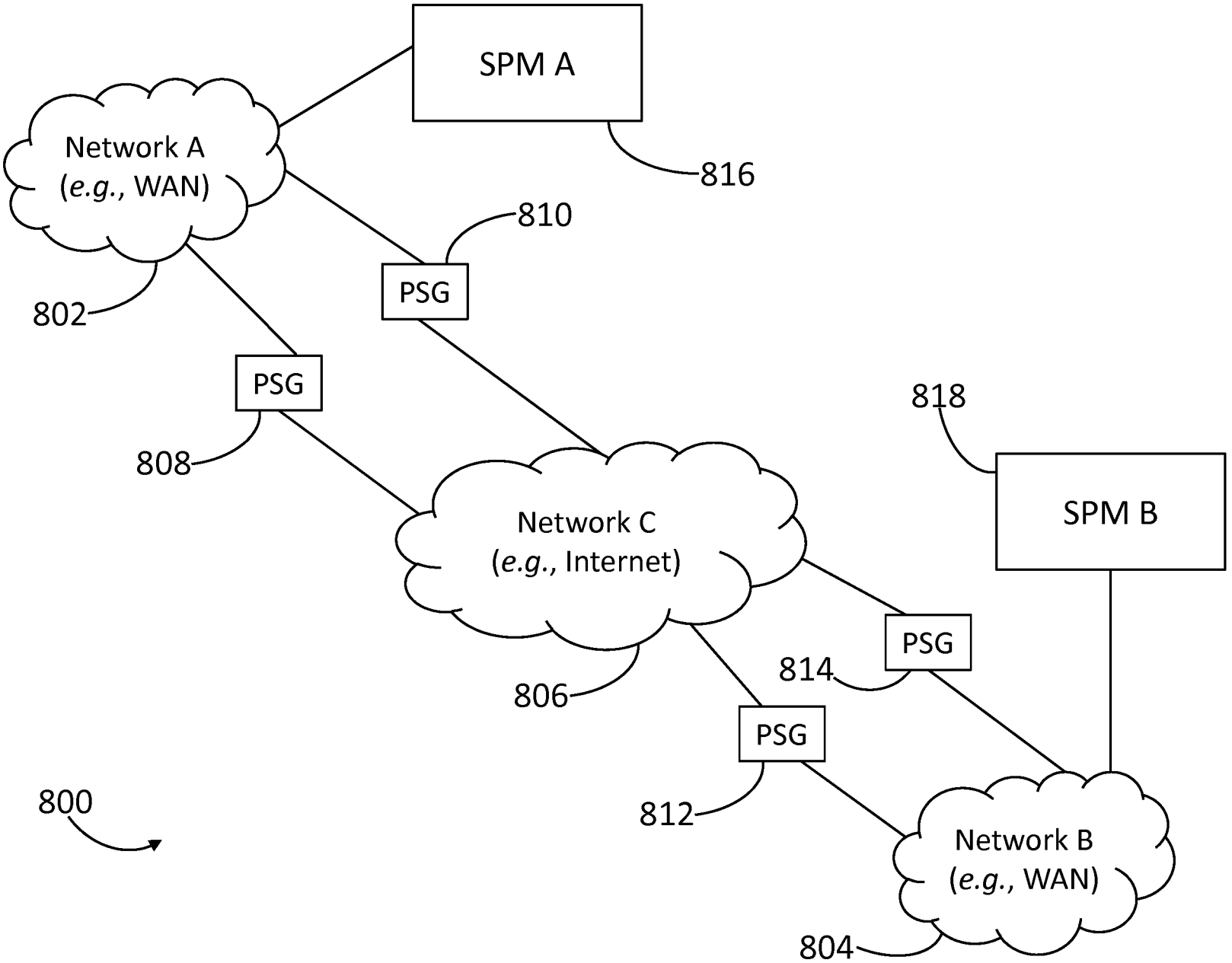

SPM A
Network A
(e.g., WAN)
816
810
802
PSG
PSG
808
818
Network C
(e.g., Internet)
SPM B
PSG
814
806
PSG
800
812
Network B
(e.g., WAN)
804

FIG. 8

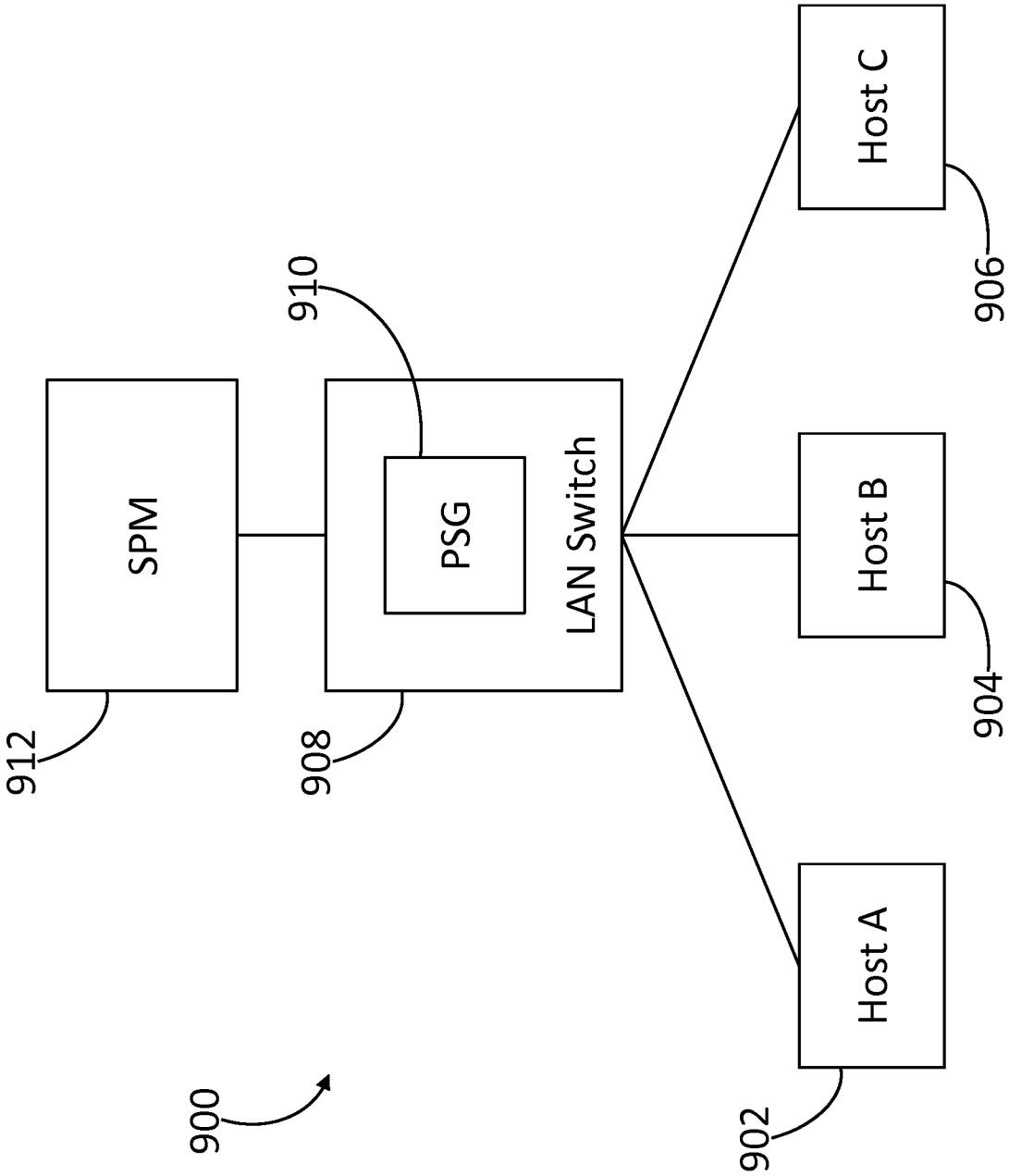

900
902
904
906
908
910
912
Host A
Host B
Host C
LAN Switch
PSG
SPM

FIG. 9

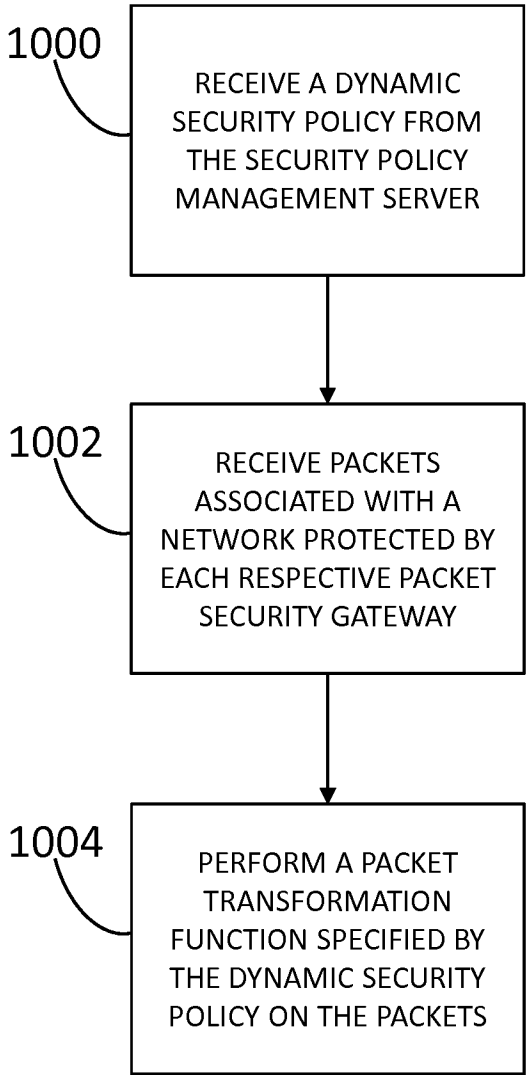

1000
RECEIVE A DYNAMIC SECURITY POLICY FROM THE SECURITY POLICY MANAGEMENT SERVER
1002
RECEIVE PACKETS ASSOCIATED WITH A NETWORK PROTECTED BY EACH RESPECTIVE PACKET SECURITY GATEWAY
1004
PERFORM A PACKET TRANSFORMATION FUNCTION SPECIFIED BY THE DYNAMIC SECURITY POLICY ON THE PACKETS

FIG. 10

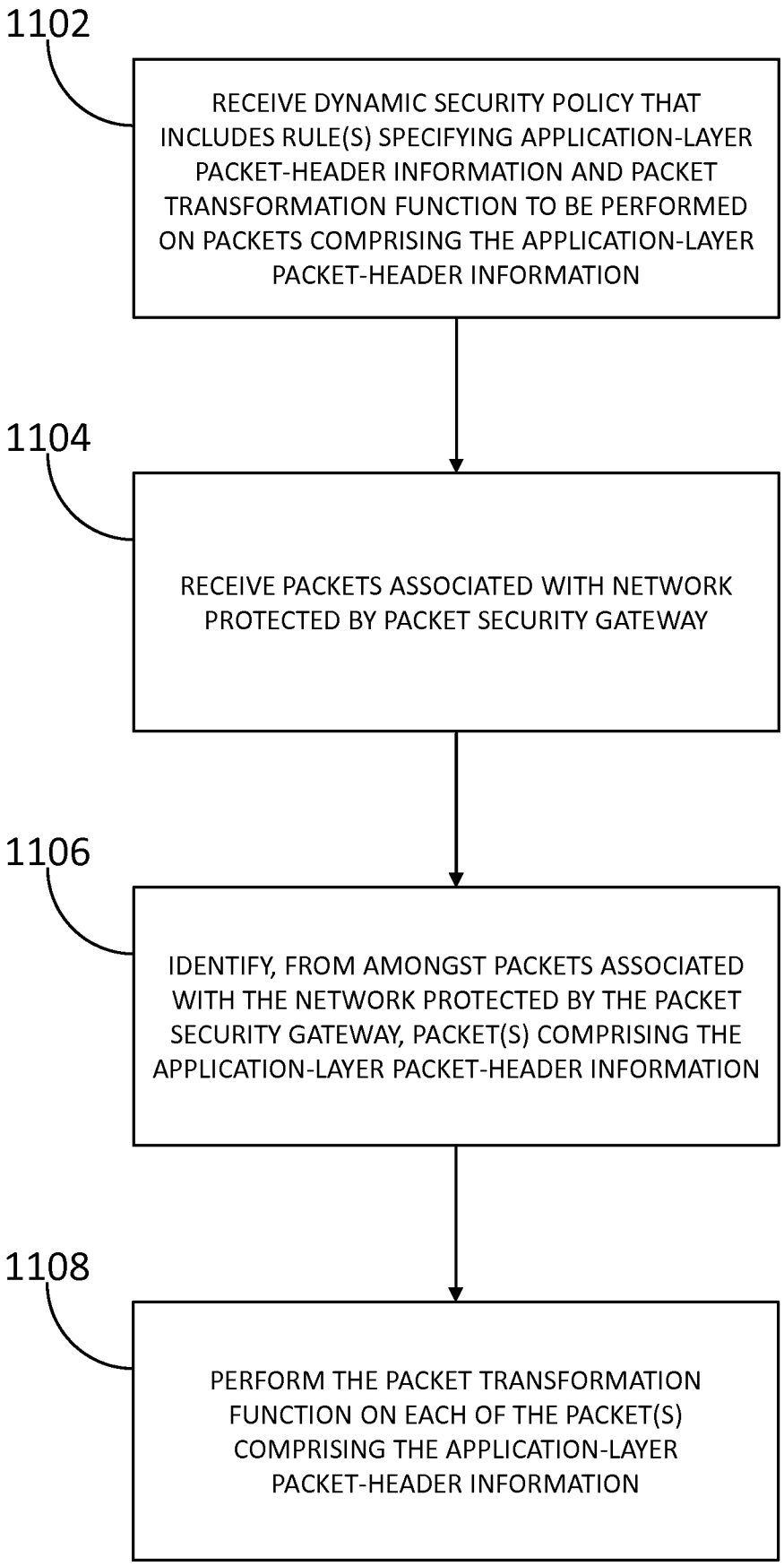

1102
RECEIVE DYNAMIC SECURITY POLICY THAT INCLUDES RULE(S) SPECIFYING APPLICATION-LAYER PACKET-HEADER INFORMATION AND PACKET TRANSFORMATION FUNCTION TO BE PERFORMED ON PACKETS COMPRISING THE APPLICATION-LAYER PACKET-HEADER INFORMATION
1104
RECEIVE PACKETS ASSOCIATED WITH NETWORK PROTECTED BY PACKET SECURITY GATEWAY
1106
IDENTIFY, FROM AMONGST PACKETS ASSOCIATED WITH THE NETWORK PROTECTED BY THE PACKET SECURITY GATEWAY, PACKET(S) COMPRISING THE APPLICATION-LAYER PACKET-HEADER INFORMATION
1108
PERFORM THE PACKET TRANSFORMATION FUNCTION ON EACH OF THE PACKET(S) COMPRISING THE APPLICATION-LAYER PACKET-HEADER INFORMATION

FIG. 11

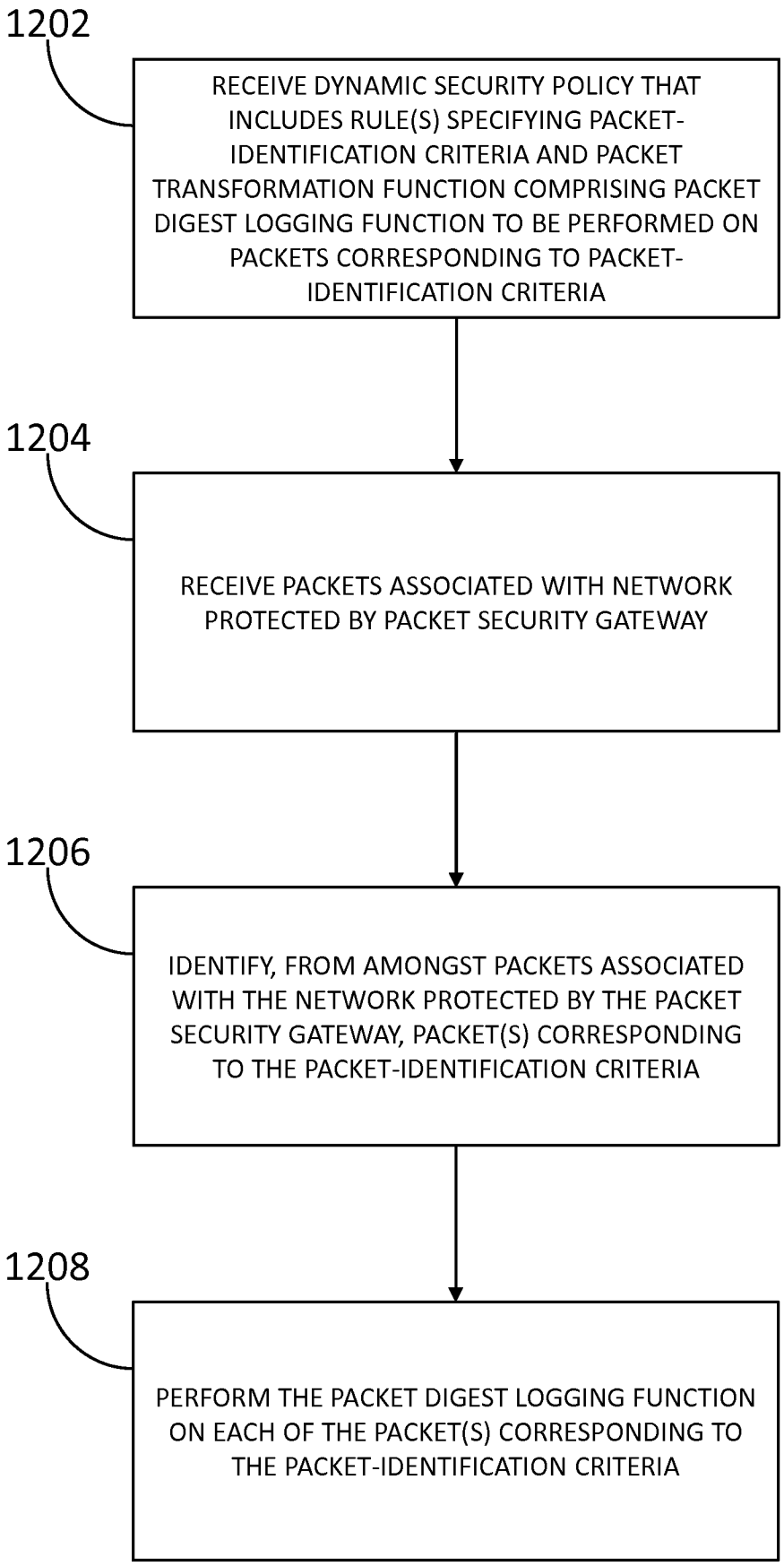

1202
RECEIVE DYNAMIC SECURITY POLICY THAT INCLUDES RULE(S) SPECIFYING PACKET-IDENTIFICATION CRITERIA AND PACKET TRANSFORMATION FUNCTION COMPRISING PACKET DIGEST LOGGING FUNCTION TO BE PERFORMED ON PACKETS CORRESPONDING TO PACKET-IDENTIFICATION CRITERIA
1204
RECEIVE PACKETS ASSOCIATED WITH NETWORK PROTECTED BY PACKET SECURITY GATEWAY
1206
IDENTIFY, FROM AMONGST PACKETS ASSOCIATED WITH THE NETWORK PROTECTED BY THE PACKET SECURITY GATEWAY, PACKET(S) CORRESPONDING TO THE PACKET-IDENTIFICATION CRITERIA
1208
PERFORM THE PACKET DIGEST LOGGING FUNCTION ON EACH OF THE PACKET(S) CORRESPONDING TO THE PACKET-IDENTIFICATION CRITERIA

FIG. 12

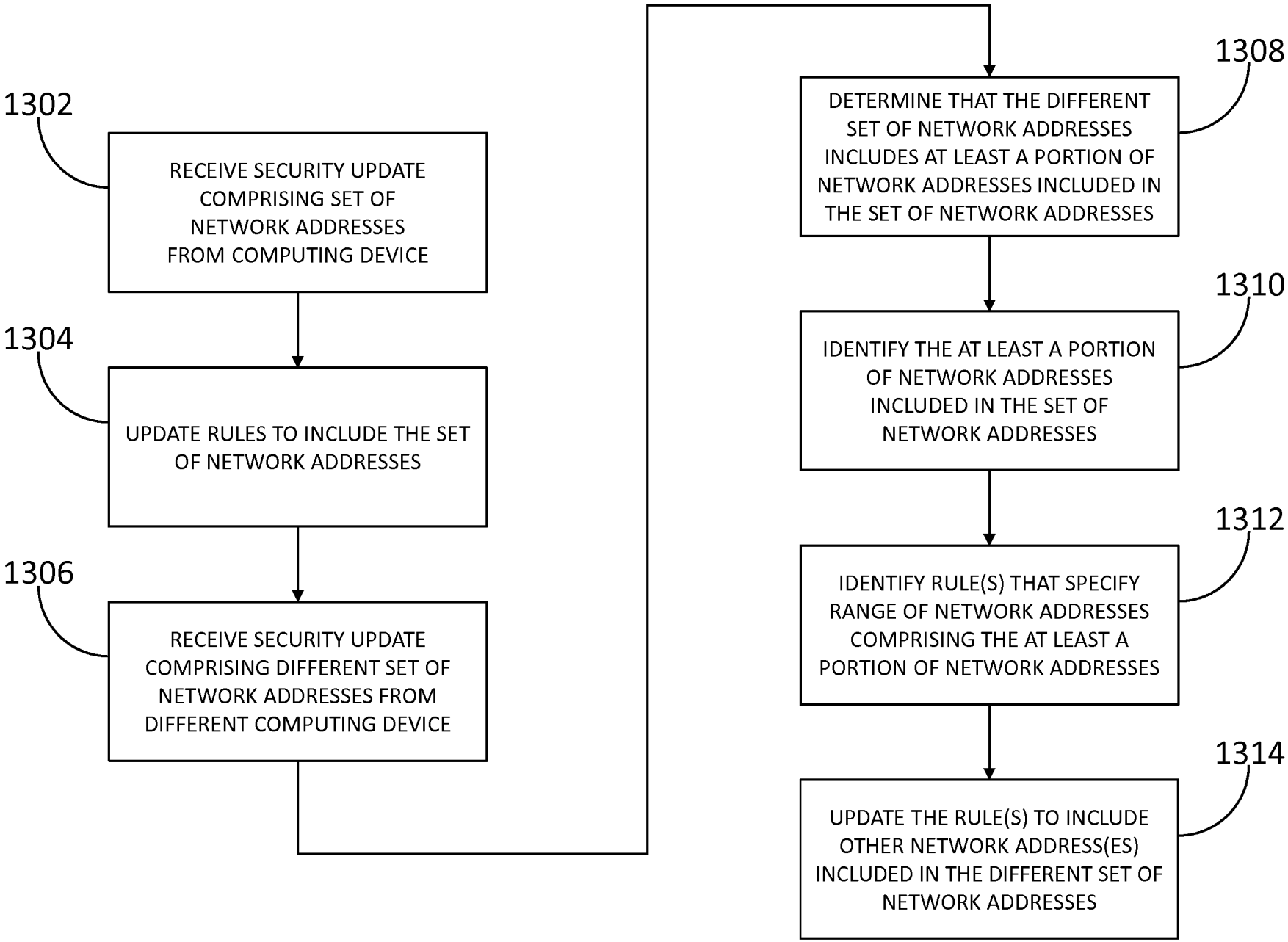

1302
RECEIVE SECURITY UPDATE COMPRISING SET OF NETWORK ADDRESSES FROM COMPUTING DEVICE
1304
UPDATE RULES TO INCLUDE THE SET OF NETWORK ADDRESSES
1306
RECEIVE SECURITY UPDATE COMPRISING DIFFERENT SET OF NETWORK ADDRESSES FROM DIFFERENT COMPUTING DEVICE
1308
DETERMINE THAT THE DIFFERENT SET OF NETWORK ADDRESSES INCLUDES AT LEAST A PORTION OF NETWORK ADDRESSES INCLUDED IN THE SET OF NETWORK ADDRESSES
1310
IDENTIFY THE AT LEAST A PORTION OF NETWORK ADDRESSES INCLUDED IN THE SET OF NETWORK ADDRESSES
1312
IDENTIFY RULE(S) THAT SPECIFY RANGE OF NETWORK ADDRESSES COMPRISING THE AT LEAST A PORTION OF NETWORK ADDRESSES
1314
UPDATE THE RULE(S) TO INCLUDE OTHER NETWORK ADDRESS(ES) INCLUDED IN THE DIFFERENT SET OF NETWORK ADDRESSES

FIG. 13