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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/916,237	03/29/2022	11290527	FOR-326	3305

88268 7590 03/09/2022
Law Office of Dorian Cartwright
P.O. Box 6629
San Jose, CA 95150

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 86 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.

INVENTOR(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional inventors):

Ignacio Franzoni Martinez, Barcelona, SPAIN;
Joan Ruiz Sanchez, Barcelona, SPAIN;

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

Fortinet, Inc., Sunnyvale, CA;

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.

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
16916237	30-Jun-2020	Ignacio Franzoni Martinez	FOR-326	3305

TITLE OF INVENTION :

AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Regular Undiscounted	Utility under 35 USC 111(a)	2452	223000	
Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
\$1200	\$0	\$1200	24-Feb-2022	\$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
88268 Law Office of Dorian Cartwright P.O. Box 6629 San Jose CA 95150 UNITED STATES 800-810-8030 eofficeaction@apcoll.com	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☐ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status**Change in Entity Status**

Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.

Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.



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 to be a notification of loss of entitlement to micro entity status.



Applicant changing to regular undiscounted fee status.

Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.



Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:☒ Issue Fee☐ I authorize USPTO to apply my previously paid issue fee to the current fees due☐ Publication Fee☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____☐ Advance Order - # of copies _____

If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number _____.

☐ The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed**NOTE: If no name is listed, no name will be printed**

For printing on the patent front page, list to be displayed as entered

1.

2.

3.

5.Assignee Name(s) and Residence Data To Be Printed

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

Name	City	State	Country	Category
Fortinet, Inc.	Sunnyvale	CALIFORNIA	UNITED STATES	corporation

6.Signature

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 has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Dorian Cartwright/	Date	02-23-2022
Name	Dorian Cartwright	Registration Number	53853

Electronic Patent Application Fee Transmittal				
Application Number:		16916237		
Filing Date:		30-Jun-2020		
Title of Invention:		AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		
First Named Inventor/Applicant Name:		Ignacio Franzoni Martinez		
Filer:		Dorian Cartwright/Kym Moore		
Attorney Docket Number:		FOR-326		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1200

Electronic Acknowledgement Receipt	
EFS ID:	45070743
Application Number:	16916237
International Application Number:	
Confirmation Number:	3305
Title of Invention:	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES
First Named Inventor/Applicant Name:	Ignacio Franzoni Martinez
Customer Number:	88268
Filer:	Dorian Cartwright/Kym Moore
Filer Authorized By:	Dorian Cartwright
Attorney Docket Number:	FOR-326
Receipt Date:	23-FEB-2022
Filing Date:	30-JUN-2020
Time Stamp:	23:07:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	\$1200
RAM confirmation Number	E20222MN07400304
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

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)	Web85b.pdf	62377	no	2
			17dfe49260738539494ead9ac074a63ac293605e		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	40366	no	2
			4f699912df353c922da2f7cad1347b771604635f		
Warnings:					
Information:					
Total Files Size (in bytes):			102743		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/916,237	06/30/2020	Ignacio Franzoni Martinez	FOR-326

CONFIRMATION NO. 3305

88268
Law Office of Dorian Cartwright
P.O. Box 6629
San Jose, CA 95150

PUBLICATION NOTICE



Title:AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES

Publication No.US-2021-0409486-A1

Publication Date:12/30/2021

NOTICE OF PUBLICATION OF APPLICATION

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.

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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



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NOTICE OF ALLOWANCE AND FEE(S) DUE

88268 7590 11/24/2021
Law Office of Dorian Cartwright
P.O. Box 6629
San Jose, CA 95150

EXAMINER

HOANG, HIEU T

ART UNIT

PAPER NUMBER

2452

DATE MAILED: 11/24/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/916,237	06/30/2020	Ignacio Franzoni Martinez	FOR-326	3305

TITLE OF INVENTION: AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	02/24/2022

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)

88268 7590 11/24/2021
Law Office of Dorian Cartwright
P.O. Box 6629
San Jose, CA 95150

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.
16/916,237	06/30/2020	Ignacio Franzoni Martinez	FOR-326	3305

TITLE OF INVENTION: AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	02/24/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
HOANG, HIEU T	2452	709-223000

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, 1 _____
- (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. 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. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/916,237	06/30/2020	Ignacio Franzoni Martinez	FOR-326	3305
88268	7590	11/24/2021	EXAMINER	
Law Office of Dorian Cartwright			HOANG, HIEU T	
P.O. Box 6629			ART UNIT	
San Jose, CA 95150			PAPER NUMBER	

2452

DATE MAILED: 11/24/2021

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.

Notice of Allowability	Application No. 16/916,237	Applicant(s) Martinez et al.	
	Examiner HIEU T HOANG	Art Unit 2452	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 communication on 06/30/2020.
☐ 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 1-20. 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 09/01/2020. 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 _____.
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/HIEU T HOANG/ Primary Examiner, Art Unit 2452	
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DETAILED ACTION

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

This office action is in response to the communication filed on 06/30/2020.

Reasons for Allowance

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

Claims 1-20 are allowed.

By interpreting the claims in light of the Specification, the Examiner finds the claimed invention to be patentably distinct from the prior art of records. Specifically, the prior art of records, individually or in combination, fail to explicitly teach, suggest or render obvious the claimed invention as recited in each independent claim, as follows:

Pargaonkar et al. (US 2021/0176191) disclose receiving, by a cloud-tagging orchestrator service running on a (security) manager associated with a private network, information regarding each cloud provider of a plurality of cloud providers associated with a cloud environment used by the private network (fig. 1, [0012], cloud management platform for managing resource tags using a tag recommendation engine 105 for a private cloud 150); and

based on the received information, for each cloud resource of a plurality of cloud resources hosted by the plurality of cloud providers on behalf of the private network:

retrieving, by the cloud-tagging orchestrator service, information associated with the cloud resource ([0014], discovering cloud resources and existing tags);

identifying, by the cloud-tagging orchestrator service, a unified tag of a plurality of unified tags for the cloud resource based on a pre-defined global tagging policy and assigning, by the cloud-tagging orchestrator service, the unified tag to the cloud resource ([0018], [0019], creating a standardized tag for the resources); and

Pargaonkar does not disclose or render obvious:

assigning, by the cloud-tagging orchestrator service, the unified tag to the cloud resource via an application programming interface (API) of a cloud provider of the plurality of cloud providers hosting the resource.

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

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is included in form PTO 892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu Hoang whose telephone number is 571-270-1253. The examiner can normally be reached on Monday-Friday, 9 a.m. to 6 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thu Nguyen can be reached on 571-272-6967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

/HIEU T HOANG/
Primary Examiner, Art Unit 2452

<i>Notice of References Cited</i>	Application/Control No. 16/916,237		Applicant(s)/Patent Under Reexamination Martinez et al.	
	Examiner HIEU T HOANG		Art Unit 2452	Page 1 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20210176191-A1	06-2021	Pargaonkar; Vishwanath	H04L61/30	1/1
*	B	US-20210064453-A1	03-2021	BAHRAMI; Mehdi	G06F9/547	1/1
*	C	US-20200322442-A1	10-2020	Luo; Lan	H04L41/0618	1/1
*	D	US-20190149436-A1	05-2019	PARK; Wi Cheol	H04L41/5054	709/226
*	E	US-20180302275-A1	10-2018	Fawcett; Bradley W.	H04L41/0803	1/1
*	F	US-20180234459-A1	08-2018	Kung; Lisun Joao	H04L63/0263	1/1
*	G	US-20180123904-A1	05-2018	Thakrar; Utpal	H04L41/22	1/1
*	H	US-20160042031-A1	02-2016	BERTRAM; Randal L.	G06F16/164	707/736
*	I	US-20150350103-A1	12-2015	BERTRAM; Randal L.	H04L47/70	709/226
*	J	US-20140006627-A1	01-2014	Arwe; John E.	H04L47/70	709/226
*	K	US-20130006865-A1	01-2013	Spates; Rick	H04L63/062	705/50
*	L	US-20060026141-A1	02-2006	Brubacher; Douglas K.	G06F9/4413	1/1
*	M	US-10908917-B1	02-2021	Maislish; Ohad	G06F9/3891	1/1

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

<i>Notice of References Cited</i>	Application/Control No. 16/916,237		Applicant(s)/Patent Under Reexamination Martinez et al.	
	Examiner HIEU T HOANG		Art Unit 2452	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-10721141-B1	07-2020	Verma; Varun	G06F11/3006	1/1
*	B	US-10594730-B1	03-2020	Summers; Carl Wesley	H04L63/10	1/1
*	C	US-10496692-B1	12-2019	Kahrs; Brian	G06F16/955	1/1
*	D	US-10417593-B1	09-2019	Norbeck, Jr.; Donald	G06F16/3328	1/1
*	E	US-10409551-B1	09-2019	Waugh; Robert Mark	H04W4/12	1/1
*	F	US-10379838-B1	08-2019	Chud; Andrew Christopher	G06F11/079	1/1
*	G	US-10277522-B1	04-2019	Canton; Jeffrey Cicero	H04L47/70	1/1
*	H	US-9934269-B1	04-2018	Kahrs; Brian	G06F16/9535	1/1
	I					
	J					
	K					
	L					
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FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

<i>Search Notes</i> 	Application/Control No. 16/916,237	Applicant(s)/Patent Under Reexamination Martinez et al.
	Examiner HIEU T HOANG	Art Unit 2452

CPC - Searched*		
Symbol	Date	Examiner
H04L63/10, H04L63/205, G06F2009/45587	10/29/2021	HH

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
PE2E, double patenting, IP.com	10/29/2021	HH

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G06F2009/45595		10/29/2021	HH

/HIEU T HOANG/ Primary Examiner, Art Unit 2452	
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Issue Classification 	Application/Control No. 16/916,237	Applicant(s)/Patent Under Reexamination Martinez et al.
	Examiner HIEU T HOANG	Art Unit 2452

CPC						
Symbol					Type	Version
H04L	/	67	/	1002	F	2013-01-01
H04L	/	67	/	40	I	2013-01-01
H04L	/	63	/	205	I	2013-01-01
G06F	/	9	/	45558	I	2013-01-01
H04L	/	63	/	10	I	2013-01-01
G06F	/	2009	/	45587	A	2013-01-01
G06F	/	2009	/	45595	A	2013-01-01

CPC Combination Sets					
Symbol				Type	Set
	/		/		

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/HIEU T HOANG/ Primary Examiner, Art Unit 2452	29 October 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	4

Issue Classification 	Application/Control No. 16/916,237	Applicant(s)/Patent Under Reexamination Martinez et al.
	Examiner HIEU T HOANG	Art Unit 2452

INTERNATIONAL CLASSIFICATION			
CLAIMED			
G06F		15	16

NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/HIEU T HOANG/ Primary Examiner, Art Unit 2452	29 October 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	4

Issue Classification 	Application/Control No. 16/916,237	Applicant(s)/Patent Under Reexamination Martinez et al.
	Examiner HIEU T HOANG	Art Unit 2452

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19										
	2		11		20										
	3		12												
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	6		15												
	7		16												
	8		17												
	9		18												

NONE	Total Claims Allowed:	
(Assistant Examiner)	(Date)	20
/HIEU T HOANG/ Primary Examiner, Art Unit 2452	29 October 2021	O.G. Print Claim(s)
(Primary Examiner)	(Date)	1
		O.G. Print Figure
		4

InnovationQ+ Powered by IP.com and IEEE Discover **Patents** cloud resource unified tag +0 mods 0 filters

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1. The method and apparatus of cloud resource management based on label ACTIONS

The method and apparatus for the cloud resource management based on label that the invention discloses a kind of, are related to field of computer technology. One specific embodiment of this method includes: to obtain the corresponding cloud resource list of label according to action type and tag...

CURRENT ASSIGNEES: BEIJING JINGDONG CENTURY TRADING CO. LTD. (+1)
CN109981322A | CHINA APPLICATIONS | 05-JUL-2019

2. Multidimensional tag namespaces for cloud resource management

The methods presented herein enable the generation of multidimensional label metrics in a cloud resource management environment. More specifically, a tag namespace is provided for managing resources in a cloud resource management environment. The namespace includes at least two dimensions and a...

CURRENT ASSIGNEES: INTEL BUSINESS MACHINES CORP
CN11800450A | CHINA APPLICATIONS | 20-OCT-2020

3. Unified resource dispatching method and system under cloud environment

The invention provides unified resource dispatching method and system under a kind of cloud environment, method therein includes: The resource allocation request that user submits is received, and resolving resource distribution request obtains resource type information and resource description...

CURRENT ASSIGNEES: SIEMENS AG
CN10723929A | CHINA APPLICATIONS | 10-OCT-2017

4. ML/P-Based Approach for Efficient Cloud IaaS Resource Allocation

Current data center designs suffer from poor resource utilization. Several research works have addressed the data center resource allocation problem, and recent proposals have focused on network resource utilization as a bottleneck problem in data centers. However, little attention has been paid to...

IEEE Xplore | IEEE CONFERENCES | 01-JUN-2015 | 2015 IEEE 8th International Conference on Cloud Computing (Page(s): 1058-1062)

5. Unified data platform and data processing method based on unified data platform

The embodiment of the invention provides a unified data platform and a data processing method based on the unified data platform, wherein the unified data platform is deployed on a cloud platform and comprises a data resource platform and a data sharing platform; the unified data platform receives...

CURRENT ASSIGNEES: ZHUHAI DAHENGQIBY TECH. DEV. CO. LTD.
CN112258366A | CHINA APPLICATIONS | 22-JAN-2021

6. Resource access authentication method and device, storage medium and electronic equipment

The invention discloses an authentication method and device for resource access, a storage medium and electronic equipment, and belongs to the field of cloud services. Wherein, the method comprises the following steps: receiving a service request sent by a client, and analyzing access information in...

CURRENT ASSIGNEES: BEIJING KINGSOFT CLOUD NETWORK TECH. CO. LTD.
CN112995166A | CHINA APPLICATIONS | 18-JUN-2021

7. Dynamic Deployment of Power IoT Security Components with Unified Resource Scheduling

The use of multiple virtualization platforms also brings new problems: it is difficult to uniformly and effectively manage the security components under multiple virtualization platforms; when instantiating virtual machines, how to choose a reasonable virtualization platform in order to make use of...

IEEE Xplore | IEEE CONFERENCES | 11-DEC-2020 | 2020 IEEE 9th Joint International Information Technology and Artificial Intelligence Conference (ITAIC)

8. Cloud computing systems

A multi-tier cloud-metering framework for metering cloud resources is presented. The proposed framework is capable of relating metering indicator of distributed resources contributing to the same application and located at different architectural levels. Metering data is collected from the...

Top 1500 results

Relevance VIEW

62 Results 3

1458 Results 4

0 Results 3

0 Results 2

0 Results 1

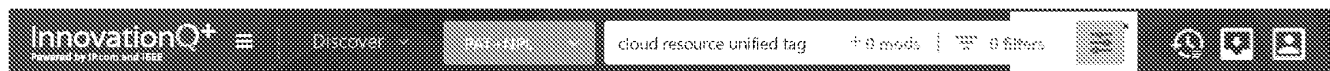
Collections VIEW

India A...
WIPO A...
China P...
US Ap...
US P...
China...
PubMe...
IBM Re...
arXiv.org: 51
IEEE C...
IEEE Per...

Publication Date VIEW

2005 2021

More Visuals



PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	160	((("MARTINEZ") near3 ("Ignacio")) OR ((("SANCHEZ") near3 ("Joan")))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:45 AM
L3	2264	fortinet.as,aanm.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:46 AM
L5	0	(1 3) AND (unified ADJ tag\$4).clm.	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:47 AM
L6	0	(cloud WITH provider AND unified ADJ tag\$4).clm.	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:47 AM
L7	0	(cloud AND provider AND unified ADJ tag\$4).clm.	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:47 AM
L8	0	(cloud AND provider AND (unified universal) ADJ tag\$4).clm.	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:48 AM
L9	1	(cloud AND provider AND (unified universal) near3 tag\$4).clm.	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:48 AM
L10	298	cloud AND provider AND (unified universal) near3 tag\$4 AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:49 AM
L11	28	resource WITH cloud SAME provider AND (unified universal) near3 tag\$4 AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:50 AM
L12	12	resource WITH cloud SAME provider AND (unified universal conver\$6 standard) near3 tag\$4 WITH resource AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:50 AM
L13	0	resource WITH cloud SAME provider AND (unified universal) near3 tag\$4 WITH resource AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 10:51 AM
L14	88	resource SAME cloud SAME provider same5 (unified universal conver\$6 standard\$4 global) near3 (metadata	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 06:07 PM

L15	36	tag\$4 format) WITH resource AND (@ad @prad)<20200630 resource SAME cloud SAME provider same5 (unified universal conver\$6 standard\$4 global) near3 (metadata tag\$4 format) near3 resource AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 06:09 PM
L16	32	resource SAME cloud SAME provider AND (unified universal conver\$6 standard\$4 global auto\$9) near3 (tag\$4) near3 resource AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 06:31 PM
L17	28	16 NOT 15	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/26 06:31 PM
L18	802	resource WITH tag\$4 SAME (api application ADJ program\$4 ADJ interface) AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 12:18 PM
L19	292	resource near3 tag\$4 SAME (api application ADJ program\$4 ADJ interface) AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 12:18 PM
L20	114	resource near3 tag\$4 WITH (api application ADJ program\$4 ADJ interface) AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 12:19 PM
L21	584	(unified universal conver\$6 standard\$4 global auto\$9) near3 (tag\$4) near6 resource AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 12:20 PM
L22	61	resource near3 tag\$4 near5 (api application ADJ program\$4 ADJ interface) AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 12:18 PM
L23	10	resource near3 tag\$4 near5 (api application ADJ program\$4 ADJ interface) AND (unified universal conver\$6 standard\$4 global auto\$9) near3 (tag\$4)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 01:46 PM

L24	10	near6 resource AND (@ad @prad)<20200630 resource near3 tag\$4 near5 (api application ADJ program\$4 ADJ interface) AND (unified universal conver\$6 standard\$4 global auto\$9) near3 (label\$4 descript\$3 tag\$4) near6 resource AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 02:11 PM
L25	28	resource near3 (tag\$4 label\$4 descript\$3) WITH (api application ADJ program\$4 ADJ interface) AND (unified universal conver\$6 standard\$4 global auto\$9) near3 (label\$4 descript\$3 tag\$4) near6 resource AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 02:12 PM
L26	18	25 NOT 24	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/28 02:13 PM
L27	0	push\$3 WITH resource near3 (tag\$4 label\$4 descript\$3) WITH (api application ADJ program\$4 ADJ interface) WITH provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:22 AM
L28	18	(push\$3 send\$3) WITH resource near3 (tag\$4 label\$4 descript\$3) WITH (api application ADJ program\$4 ADJ interface) WITH provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:22 AM
L29	23	(push\$3 send\$3 updat\$3) WITH resource near3 (tag\$4 label\$4 descript\$3) WITH (api application ADJ program\$4 ADJ interface) WITH provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:22 AM
L30	43	(push\$3 send\$3 updat\$3 provid\$3) WITH resource near3 (tag\$4 label\$4	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:22 AM

L31	75	descript\$3) WITH (api application ADJ program\$4 ADJ interface) WITH provider AND (@ad @prad)<20200630 (push\$3 send\$3 updat\$3 provid\$3 assign\$3) WITH resource near3 (tag\$4 label\$4 descript\$3 metadata) WITH (api application ADJ program\$4 ADJ interface) WITH provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:45 AM
L32	32	31 NOT 30	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:45 AM
L33	403	(push\$3 send\$3 updat\$3 provid\$3 assign\$3) near5 (tag\$4 label\$4 descript\$3 metadata) WITH (api application ADJ program\$4 ADJ interface) near3 (resource cloud provider) AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:52 AM
L34	26	(push\$3 send\$3 updat\$3 provid\$3 assign\$3) near5 (tag\$4 label\$4 descript\$3 metadata) WITH (api application ADJ program\$4 ADJ interface) near3 (resource cloud) NEAR3 provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:52 AM
L35	271	(push\$3 send\$3 updat\$3 provid\$3 assign\$3) near5 (tag\$4 label\$4 descript\$3 metadata) WITH (api application ADJ program\$4 ADJ interface) near3 provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:55 AM
L36	141	(push\$3 send\$3 updat\$3 provid\$3 assign\$3) near5 (tag\$4	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:55 AM

L37	3	label\$4 descript\$3) WITH (api application ADJ program\$4 ADJ interface) near3 provider AND (@ad @prad)<20200630 third ADJ party SAME (push\$3 send\$3 updat\$3 provid\$3 assign\$3) near5 resource near3(tag\$4 label\$4 descript\$3 metadata) WITH (api application ADJ program\$4 ADJ interface) near3 provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:57 AM
L38	3	(third ADJ party tag\$3 near4 service) SAME (push\$3 send\$3 updat\$3 provid\$3 assign\$3) near5 resource near3(tag\$4 label\$4 descript\$3 metadata) WITH (api application ADJ program\$4 ADJ interface) near3 provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 10:57 AM
L39	47359	(H04L63/10 OR H04L63/205 OR G06F2009/45587).cpc.	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 11:02 AM
L40	7	(push\$3 send\$3 updat\$3 provid\$3 assign\$3 defin\$3 creat\$3 populat\$3) near5 resource near4(tag\$4 label\$4 descript\$3) WITH (api application ADJ program\$4 ADJ interface) near3 provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 11:04 AM
L41	21	(push\$3 send\$3 updat\$3 provid\$3 assign\$3 defin\$3 creat\$3 populat\$3) near5 resource near4(tag\$4 label\$4 descript\$3 metadata) WITH (api application ADJ program\$4 ADJ interface) near3	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 11:06 AM

L42	31	provider AND (@ad @prad)<20200630 (push\$3 send\$3 updat\$3 provid\$3 assign\$3 defin\$3 creat\$3 populat\$3) near5 resource near2(id identif\$9 tag\$4 label\$4 descript\$3 metadata) WITH (api application ADJ program\$4 ADJ interface) near3 provider AND (@ad @prad)<20200630	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 11:31 AM
L43	15	42 NOT 41	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	OR	ON	ON	2021/10/29 11:31 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	8309	(G06F2009/45595).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2021/10/29 11:02 AM
N2	1	(tag\$4 WITH resource WITH api WITH provider).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/10/29 11:03 AM

Bibliographic Data

Application No: 16/916,237

Foreign Priority claimed: ☐ Yes ☒ No

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

Verified and Acknowledged:

/HIEU T HOANG/

Examiner's Signature

HH

Initials

Title:

AUTOMATIC TAGGING OF CLOUD RESOURCES FOR
IMPLEMENTING SECURITY POLICIES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
06/30/2020	709	2452	FOR-326
RULE			

APPLICANTS

Fortinet, Inc., Sunnyvale, CA, UNITED STATES

INVENTORS

Ignacio Franzoni Martinez, Barcelona, SPAIN

Joan Ruiz Sanchez, Barcelona, SPAIN

CONTINUING DATA

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/10/2020

STATE OR COUNTRY

SPAIN

ADDRESS

Law Office of Dorian Cartwright

P.O. Box 6629

San Jose, CA 95150

UNITED STATES

FILING FEE RECEIVED

\$1,720

Doc code: IDS

PTO/SB/08a (02-18)

Doc description: Information Disclosure Statement (IDS) Filed

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	16916237
	Filing Date	2020-06-30
	First Named Inventor	Ignacio Franzoni Martinez
	Art Unit	
	Examiner Name	
	Attorney Docket Number	FORT-033400

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		16916237
	Filing Date		2020-06-30
	First Named Inventor	Ignacio Franzoni Martinez	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		FORT-033400

1	"Tagging Best Practices: Implement an Effective AWS Resource Tagging Strategy", Amazon Web Services, December 2018, 24 pages.
2	Multi-Cloud Tagging Strategies For the Win", DivvyCloud, October 14, 2019, https://divvycloud.com/tagging-strategies-importance-and-utility-of-tagging-cloud-resources/ , 21 pages.

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EXAMINER SIGNATURE

Examiner Signature	/HIEU T HOANG/	Date Considered	10/26/2021
--------------------	----------------	-----------------	------------

*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.

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

Application Number	16916237
Filing Date	2020-06-30
First Named Inventor	Ignacio Franzoni Martinez
Art Unit	
Examiner Name	
Attorney Docket Number	FORT-033400

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	/Michael A. DeSanctis/	Date (YYYY-MM-DD)	2020-09-01
Name/Print	Michael A. DeSanctis	Registration Number	39957

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 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 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.



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/916,237	06/30/2020	Ignacio Franzoni Martinez	FORT-033400

CONFIRMATION NO. 3305

POA ACCEPTANCE LETTER

88268
Law Office of Dorian Cartwright
P.O. Box 6629
San Jose, CA 95150



OC000000122652561*

Date Mailed: 01/15/2021

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/12/2021.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/cvorachack/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/916,237	06/30/2020	Ignacio Franzoni Martinez	FORT-033400

CONFIRMATION NO. 3305

POWER OF ATTORNEY NOTICE

64128
MICHAEL A DESANCTIS
JAFFERY WATSON MENDONSA & HAMILTON LLP
7501 Village Square Drive, Ste. 206
Castle Pines, CO 80108



Date Mailed: 01/15/2021

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/12/2021.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/cvorachack/

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
16/916,237	6/30/2020

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

88268

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☒ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name				
Address				
City	State	Zip		
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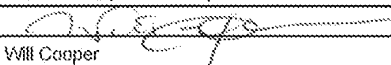
I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Fortinet, Inc.

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	
Name	Will Cooper		
Title	Director of Litigation, Intellectual Property and Privacy		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☒ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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.

Electronic Acknowledgement Receipt	
EFS ID:	41627115
Application Number:	16916237
International Application Number:	
Confirmation Number:	3305
Title of Invention:	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES
First Named Inventor/Applicant Name:	Ignacio Franzoni Martinez
Customer Number:	64128
Filer:	Dorian Cartwright/Kym Moore
Filer Authorized By:	Dorian Cartwright
Attorney Docket Number:	FORT-033400
Receipt Date:	12-JAN-2021
Filing Date:	30-JUN-2020
Time Stamp:	20:56:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	FOR-326_poa.pdf	2617266	no	1
			509ba0cbbbebe46965de6467b575fe93d7182756a		
Warnings:					

Information:	
Total Files Size (in bytes):	2617266
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16916237
	Filing Date	2020-06-30
	First Named Inventor	Ignacio Franzoni Martinez
	Art Unit	
	Examiner Name	
	Attorney Docket Number	FORT-033400

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		16916237
	Filing Date		2020-06-30
	First Named Inventor	Ignacio Franzoni Martinez	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	FORT-033400	

1	"Tagging Best Practices: Implement an Effective AWS Resource Tagging Strategy", Amazon Web Services, December 2018, 24 pages.
2	Multi-Cloud Tagging Strategies For the Win", DivvyCloud, October 14, 2019, https://divvycloud.com/tagging-strategies-importance-and-utility-of-tagging-cloud-resources/ , 21 pages.

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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*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	16916237
	Filing Date	2020-06-30
	First Named Inventor	Ignacio Franzoni Martinez
	Art Unit	
	Examiner Name	
	Attorney Docket Number	FORT-033400

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	/Michael A. DeSanctis/	Date (YYYY-MM-DD)	2020-09-01
Name/Print	Michael A. DeSanctis	Registration Number	39957

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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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.
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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.
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Electronic Acknowledgement Receipt	
EFS ID:	40445425
Application Number:	16916237
International Application Number:	
Confirmation Number:	3305
Title of Invention:	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES
First Named Inventor/Applicant Name:	Ignacio Franzoni Martinez
Customer Number:	64128
Filer:	Michael A. DeSanctis
Filer Authorized By:	
Attorney Docket Number:	FORT-033400
Receipt Date:	01-SEP-2020
Filing Date:	30-JUN-2020
Time Stamp:	17:56:13
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)	FORT-033400_IDS.pdf	1034464	no	4
			9c56a49b35b3cf4aaa0631cd073bf52ccc79e37d		
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.					
2	Non Patent Literature	NPL_1.pdf	392086	no	24
			8b31d385959b13958c518d0e93bb383ff3962934		
Warnings:					
Information:					
3	Non Patent Literature	NPL_2.pdf	700128	no	21
			411003aa63fea8be92ed99396fd8211520376385d		
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Total Files Size (in bytes):			2126678		
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/916,237		
APPLICATION AS FILED - PART I								
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)	
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 100 =	0.00	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 460 =	0.00	
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	
			TOTAL			TOTAL	1720	
* If the difference in column 1 is less than zero, enter "0" in column 2.								
APPLICATION AS AMENDED - PART II								
AMENDMENT A	(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	OR OTHER THAN SMALL ENTITY
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	OR	x =	
	Application Size Fee (37 CFR 1.16(s))					OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR		
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	
AMENDMENT B	(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	OR OTHER THAN SMALL ENTITY
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	OR	x =	
	Application Size Fee (37 CFR 1.16(s))					OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR		
					TOTAL ADD'L FEE		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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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
16/916,237	06/30/2020		1720	FORT-033400	20	3

CONFIRMATION NO. 3305

FILING RECEIPT



CC000000118397029

64128
MICHAEL A DESANCTIS
JAFFERY WATSON MENDONSA & HAMILTON LLP
7501 Village Square Drive, Ste. 206
Castle Pines, CO 80108

Date Mailed: 07/13/2020

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Inventor(s)

Ignacio Franzoni Martinez, Barcelona, SPAIN;
Joan Ruiz Sanchez, Barcelona, SPAIN;

Applicant(s)

Fortinet, Inc., Sunnyvale, CA;

Assignment For Published Patent Application

Fortinet, Inc., Sunnyvale, CA

Power of Attorney: The patent practitioners associated with Customer Number 64128

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

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

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If Required, Foreign Filing License Granted: 07/10/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/916,237**

Projected Publication Date: 12/30/2021

Non-Publication Request: No

Early Publication Request: No

Title

AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES

Preliminary Class

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

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Document Date: 06/30/2020

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I hereby appoint:



Practitioners associated with the Customer Number:

64128

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

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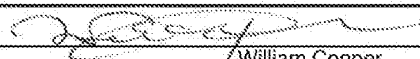
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Assignee Name and Address:
Fortinet, Inc.
899 Kifer Rd.
Sunnyvale, CA 94086

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SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	1-11-2018
Name	William Cooper	Telephone	(925) 984-3225
Title	Director of Litigation, Intellectual Property and Privacy		

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Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		
First Named Inventor/Applicant Name:		Ignacio Franzoni Martinez		
Filer:		Michael A. DeSanctis		
Attorney Docket Number:		FORT-033400		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1720

Electronic Acknowledgement Receipt	
EFS ID:	39865801
Application Number:	16916237
International Application Number:	
Confirmation Number:	3305
Title of Invention:	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES
First Named Inventor/Applicant Name:	Ignacio Franzoni Martinez
Customer Number:	64128
Filer:	Michael A. DeSanctis
Filer Authorized By:	
Attorney Docket Number:	FORT-033400
Receipt Date:	30-JUN-2020
Filing Date:	
Time Stamp:	10:35:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1720
RAM confirmation Number	E20206TA36065604
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Patent_Application.pdf	215316	yes	25
			1c7214458fc798a23e0192b5d42a5ff2cd348d0a		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	20	
	Claims		21	24	
	Abstract		25	25	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	Figures.pdf	201557	no	5
			ad466f794964a021c154901d40abe86148b42d92		
Warnings:					
Information:					
3	Application Data Sheet	ADS.pdf	1822920	no	8
			bcd412c9f549f946d6050acd7cd3ec45bd31c547		
Warnings:					
Information:					
4	Oath or Declaration filed	Executed_Declarations.pdf	1539817	no	2
			caef9898c3b22a7acea06bb09be1dab4566dffbb		
Warnings:					
Information:					
5	Assignee showing of ownership per 37 CFR 3.73	statement.pdf	117105	no	3
			fd0feb36c456e26215013d04546faf2e831b8fc1		

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6	Assignee showing of ownership per 37 CFR 3.73	Executed_Assignment.pdf	1946870 3b3ed416677e92fb3e2f160526506f74554254f	no	2
Warnings:					
Information:					
7	Power of Attorney	Executed_POA_3_73_c_899.pdf	474709 90c012816ba61c3524f930194f96b062ec0f98ca	no	1
Warnings:					
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8	Fee Worksheet (SB06)	fee-info.pdf	34474 a1474d276aa31269c3a08772c43f8a239b85310e	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			6352768		
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Atty. Docket No.: FORT-033400
Fortinet Ref. No.: 19010

Patent Application

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

TITLE OF THE INVENTION

**AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING
SECURITY POLICIES**

Inventors: **Ignacio Franzoni Martinez**, residing in:
Barcelona, SPAIN

Joan Ruiz Sanchez, residing in:
Barcelona, SPAIN

Assignee: **FORTINET, INC.**
A Delaware Corporation

Entity: Regular Undiscounted

AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES

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BACKGROUND

Field

[0002] Embodiments of the present invention generally relate to the field of cybersecurity and expression of security policies with reference to tags assigned to resources. In particular, embodiments of the present invention relate to tag management and orchestration for cloud resources throughout a hybrid multi-cloud environment to facilitate real-time synchronization of such security policies implemented by the private network.

Description of the Related Art

[0003] There has been a significant increase in the use of cloud computing technology over the last few years. In a cloud environment, end-to-end automation of deployment of services is generally referred to as cloud orchestration. More specifically, cloud orchestration involves automated arrangement, coordination, and management of complex computer systems, middleware, and services, which accelerates delivery of services while reducing costs. Orchestration is used to manage cloud environments, which supply and assign cloud resources (e.g. creation of Virtual Machine (VMs), allocation of storage capacity, management of network resources, and granting access to cloud software).

[0004] While cloud platforms (e.g., Amazon Web Services (AWS), Google Cloud Platform (GCP) and Microsoft Azure) support the assignment of metadata to cloud resources in the form of tags (or labels) to manage, search for, and filter resources, different cloud providers may use

inconsistent tag naming conventions, resulting in similar resources being tagged in a disparate manner across a multi-cloud environment and complicating definition and/or implementation of security policies.

SUMMARY

[0005] Systems and methods are described for automatically tagging cloud resources that are spread across multiple cloud platforms. According to one embodiment, information regarding each cloud provider of multiple cloud providers associated with a cloud environment used by a private network is received by a cloud-tagging orchestrator service running on a security manager associated with the private network. For each cloud resource of a plurality of cloud resources hosted by the cloud providers on behalf of the private network: (i) information associated with the cloud resource is retrieved by the cloud-tagging orchestrator service; (ii) a unified tag of multiple unified tags for the cloud resource is identified by the cloud-tagging orchestrator service based on a pre-defined global tagging policy; and (ii) the unified tag is assigned by the cloud-tagging orchestrator service to the cloud resource via an application programming interface (API) of a cloud provider of the multiple cloud providers hosting the resource.

[0006] Other features of embodiments of the present disclosure will be apparent from accompanying drawings and detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] In the Figures, similar components and/or features may have the same reference label. Further, various components of the same type may be distinguished by following the reference label with a second label that distinguishes among the similar components. If only the first reference label is used in the specification, the description is applicable to any one of the similar components having the same first reference label irrespective of the second reference label.

[0008] FIG. 1 illustrates a network architecture in which aspects of the present invention can be implemented in accordance with an embodiment of the present invention.

[0009] FIG. 2 is a block diagram illustrating functional components of a security manager in accordance with an embodiment of the present invention.

[0010] FIGs. 3A-B illustrate exemplary representations of implementation of security manager in accordance with an embodiment of the present invention.

[0011] FIG. 4 is a flow diagram illustrating a process performed by a security manager in accordance with an embodiment of the present invention.

[0012] FIG. 5 illustrates an exemplary computer system in which or with which embodiments of the present invention may be utilized.

DETAILED DESCRIPTION

[0013] Systems and methods are described for automatically tagging cloud resources that are spread across multiple cloud platforms. At present, cloud customers (e.g., enterprises) cloud customers experience difficulties attempting to maintain and handle tags from different cloud providers and these difficulties are compounded as their cloud deployment complexities increase. Cloud customers do not have an easy way to standardize tags across a hybrid public/private multi-cloud environment. Rather, customers must use tools and application programming interfaces (APIs) supplied by each cloud platform, which may differ significantly. The inability to implement a unified tagging approach in a hybrid public/private multi-cloud environment also affects the ability on the part of cloud customers to keep their security policies up to date.

[0014] Embodiments described herein seek to provide a global tagging orchestrator to facilitate uniform tagging of cloud resources used by enterprises that may be distributed across multiple private and public clouds of different cloud providers. In the following description, numerous specific details are set forth in order to provide a thorough understanding of embodiments of the present invention. It will be apparent to one skilled in the art that embodiments of the present invention may be practiced without some of these specific details.

[0015] Embodiments of the present invention include various steps, which will be described below. The steps may be performed by hardware components or may be embodied in machine-executable instructions, which may be used to cause a general-purpose or special-purpose processor programmed with the instructions to perform the steps. Alternatively, steps may be performed by a combination of hardware, software, firmware and/or by human operators.

[0016] Embodiments of the present invention may be provided as a computer program product, which may include a machine-readable storage medium tangibly embodying thereon instructions, which may be used to program a computer (or other electronic devices) to perform a process. The machine-readable medium may include, but is not limited to, fixed (hard) drives, magnetic tape, floppy diskettes, optical disks, compact disc read-only memories (CD-ROMs), and magneto-optical disks, semiconductor memories, such as ROMs, PROMs, random access memories (RAMs), programmable read-only memories (PROMs), erasable PROMs (EPROMs), electrically erasable PROMs (EEPROMs), flash memory, magnetic or optical cards, or other type

of media/machine-readable medium suitable for storing electronic instructions (e.g., computer programming code, such as software or firmware).

[0017] Various methods described herein may be practiced by combining one or more machine-readable storage media containing the code according to the present invention with appropriate standard computer hardware to execute the code contained therein. An apparatus for practicing various embodiments of the present invention may involve one or more computers (or one or more processors within a single computer) and storage systems containing or having network access to computer program(s) coded in accordance with various methods described herein, and the method steps of the invention could be accomplished by modules, routines, subroutines, or subparts of a computer program product.

Terminology

[0018] Brief definitions of terms used throughout this application are given below.

[0019] The terms “connected” or “coupled” and related terms are used in an operational sense and are not necessarily limited to a direct connection or coupling. Thus, for example, two devices may be coupled directly, or via one or more intermediary media or devices. As another example, devices may be coupled in such a way that information can be passed there between, while not sharing any physical connection with one another. Based on the disclosure provided herein, one of ordinary skill in the art will appreciate a variety of ways in which connection or coupling exists in accordance with the aforementioned definition.

[0020] If the specification states a component or feature “may”, “can”, “could”, or “might” be included or have a characteristic, that particular component or feature is not required to be included or have the characteristic.

[0021] As used in the description herein and throughout the claims that follow, the meaning of “a,” “an,” and “the” includes plural reference unless the context clearly dictates otherwise. Also, as used in the description herein, the meaning of “in” includes “in” and “on” unless the context clearly dictates otherwise.

[0022] The phrases “in an embodiment,” “according to one embodiment,” and the like generally mean the particular feature, structure, or characteristic following the phrase is included

in at least one embodiment of the present disclosure, and may be included in more than one embodiment of the present disclosure. Importantly, such phrases do not necessarily refer to the same embodiment.

[0023] As used herein, a “cloud resource” generally refers to a resource or a service provided by a cloud platform on behalf of a cloud customer. A cloud resource may be allocated to a cloud customer from a shared pool of resources in physical and/or virtual form. Depending upon the cloud computing service model (e.g., Software as a Service (SaaS), Platform as a Service (PaaS), or Infrastructure as a Service (IaaS)), cloud resources may be in the form of applications (e.g., customer resource management (CRM), email, document management, collaboration, human resources, content management, sales, billing enterprise resource planning (ERP), etc. desktop), platforms (e.g., execution runtime, application deployment, database, web server, development tools, and business intelligence), and/or infrastructure (e.g., platform hosting, backup and recovery, compute resources (such as virtual machines, servers), storage resources, and network resources (such as load balancers and network security appliances/services)).

[0024] As used herein, “intent-based security policy” generally refers to a security policy expressed with reference to one or more tags rather than or in addition to Internet Protocol (IP) addresses and/or virtual local area networks (VLANs).

[0025] As used herein, a “network security appliance” or a “network security device” generally refers to a device or appliance in virtual or physical form that is operable to perform one or more security functions. Some network security devices may be implemented as general-purpose computers or servers with appropriate software operable to perform the one or more security functions. Other network security devices may also include custom hardware (e.g., one or more custom Application Specific Integrated Circuits (ASICs)). A network security device is typically associated with a particular network (e.g., a private enterprise network) on behalf of which it provides the one or more security functions. The network security device may reside within the particular network that it is protecting or network security may be provided as a service with the network security device residing in the cloud. Non-limiting examples of security functions include authentication, next-generation firewall protection, antivirus scanning, content filtering, data privacy protection, web filtering, network traffic inspection (e.g., secure sockets layer (SSL) or Transport Layer Security (TLS) inspection), intrusion prevention, intrusion

detection, denial of service attack (DoS) detection and mitigation, encryption (e.g., Internet Protocol Secure (IPSec), TLS, SSL), application control, Voice over Internet Protocol (VoIP) support, Virtual Private Networking (VPN), data leak prevention (DLP), antispam, antispyware, logging, reputation-based protections, event correlation, network access control, vulnerability management, and the like. Such security functions may be deployed individually as part of a point solution or in various combinations in the form of a unified threat management (UTM) solution. Non-limiting examples of network security appliances/devices include network gateways, VPN appliances/gateways, UTM appliances (e.g., the FORTIGATE family of network security appliances), messaging security appliances (e.g., FORTIMAIL family of messaging security appliances), database security and/or compliance appliances (e.g., FORTIDB database security and compliance appliance), web application firewall appliances (e.g., FORTIWEB family of web application firewall appliances), application acceleration appliances, server load balancing appliances (e.g., FORTIBALANCER family of application delivery controllers), vulnerability management appliances (e.g., FORTISCAN family of vulnerability management appliances), configuration, provisioning, update and/or management appliances (e.g., FORTIMANAGER family of management appliances), logging, analyzing and/or reporting appliances (e.g., FORTIANALYZER family of network security reporting appliances), bypass appliances (e.g., FORTIBRIDGE family of bypass appliances), Domain Name Server (DNS) appliances (e.g., FORTIDNS family of DNS appliances), wireless security appliances (e.g., FORTIWIFI family of wireless security gateways), and DoS attack detection appliances (e.g., the FORTIDDOS family of DoS attack detection and mitigation appliances).

[0026] Exemplary embodiments will now be described more fully hereinafter with reference to the accompanying drawings, in which exemplary embodiments are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. These embodiments are provided so that this invention will be thorough and complete and will fully convey the scope of the invention to those of ordinary skill in the art. Moreover, all statements herein reciting embodiments of the invention, as well as specific examples thereof, are intended to encompass both structural and functional equivalents thereof. Additionally, it is intended that such equivalents include both currently known equivalents as well as equivalents developed in the future (i.e., any elements developed that perform the same function, regardless of structure).

[0027] Thus, for example, it will be appreciated by those of ordinary skill in the art that the diagrams, schematics, illustrations, and the like represent conceptual views or processes illustrating systems and methods embodying this invention. The functions of the various elements shown in the figures may be provided through the use of dedicated hardware as well as hardware capable of executing associated software. Similarly, any switches shown in the figures are conceptual only. Their function may be carried out through the operation of program logic, through dedicated logic, through the interaction of program control and dedicated logic, or even manually, the particular technique being selectable by the entity implementing this invention. Those of ordinary skill in the art further understand that the exemplary hardware, software, processes, methods, and/or operating systems described herein are for illustrative purposes and, thus, are not intended to be limited to any particular named.

[0028] According to various aspects of the present disclosure, a centralized cloud-tagging orchestrator service running on a security manager associated with a private network receives, for example, via APIs of respective cloud platforms, information regarding cloud resources hosted by one or more cloud providers on behalf of the private network. Further, based on the received information, for each cloud resource, the cloud-tagging orchestrator service creates a tag for the resource based on a pre-defined global tagging policy that facilitates definition and enforcement of intent-based security policies, for example. The mapping of the assigned tags and the corresponding cloud resources may be maintained in a database operatively coupled with the cloud-tagging orchestrator service and the assigned tags may be pushed back out to the cloud providers periodically or on-demand. Information regarding the cloud resources may be accessed by the cloud-tagging orchestrator service using application program interfaces (APIs) provided by the respective cloud providers. As needed, the security manager (or other network security devices or management devices) may retrieve a tag from the database to apply a security policy to a corresponding resource, for example, when traffic is observed that is received from or directed to a particular cloud resource or when data associated with a particular cloud resource is accessed.

[0029] FIG. 1 illustrates a network architecture 100 in which aspects of the present invention can be implemented in accordance with an embodiment of the present invention.

[0030] In network architecture 100, a security manager 102 implementing an orchestrator 120 is illustrated. Orchestrator 120 may perform various automation tasks to reduce operational

workload of configuration and troubleshooting for security manager 102. Security manager 102 is associated with a private network 114 (which may be referred to as network 114, hereinafter) and also includes or is integrated with a network analyzer 104, a network manager 106 and a network Security Information and Event Management (SIEM) appliance 108 to enable automation of security life-cycle management processes and ensure compliance. Network 114 includes computing devices 116-1, 116-2,..., 116-N (which may be collectively referred to as computing devices 116, and may be individually referred to as computing device 116, hereinafter) that are accessed by users 118-1, 118-2,..., 118-N (which may be collectively referred to as users 118, and may be individually referred to as a user 118, hereinafter).

[0031] In one embodiment, security manager 102 is an on-premises management appliance associated with network 114 that manages computing devices 116 associated with network 114. In another embodiment, security manager 102 is a cloud based security manager that can be implemented in the form of a cloud service (e.g., by private cloud 110, public cloud 112, and/or hybrid cloud 114). In yet another embodiment, orchestrator 120 acts as a means for communication for security manager 102 such that all cloud environments and computing devices interact with orchestrator 120 in order to interact with security manager 102. Regardless of location, security manager 102 or orchestrator 120 can maintain connectivity with each of network appliances of network 114. Non-limiting examples of a cloud-based security service include the enSilo Cloud Service and FORTIGUARD security services available from assignee of the present invention.

[0032] Computing devices 116 associated with network 114 may include, but are not limited to, personal computers, smart devices, web-enabled devices, hand-held devices, laptops, mobile devices, and the like. In one embodiment, security manager 102 may interact with users 118 through network 114 via their respective computing devices 116, for example, in the form of notifications or alerts via a user interface associated with computing devices 116.

[0033] Those skilled in the art will appreciate that, network 114 can be a wireless network, a wired network or a combination thereof that can be implemented as one of the various types of networks, such as an Intranet, a Local Area Network (LAN), a Wide Area Network (WAN), an Internet, and the like. Further, network 114 can either be a dedicated network or a shared network. The shared network represents an association of the different types of networks that use a variety

of protocols, for example, Hypertext Transfer Protocol (HTTP), Transmission Control Protocol/Internet Protocol (TCP/IP), Wireless Application Protocol (WAP), and the like.

[0034] As described in further detail below, orchestrator 120 may implement a cloud-tagging orchestrator service as well as manage interconnections and interactions among resources on private cloud services 110 (e.g., VMWare ESXi/NSX, OpenStack, Kubernetes or Cisco Application Centric Infrastructure (ACI)), public cloud services 112 (e.g. Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP) and Oracle) and hybrid cloud services 114. For example, orchestrator 120 may provision, deploy or start resources or virtual machines (VMs), acquire and assigns storage capacity, manage networking, create VMs, gain access to specific software on cloud services and integrate permission checks for security policy implementation and compliance.

[0035] Depending upon the particular implementation orchestrator 120 may be part of security manager 102 or may be an independent service used by security manager 102. In one embodiment, orchestrator 120 receives information regarding resources within one or more clouds (e.g., private cloud 110, public cloud 112 and/or hybrid cloud 114) that are used by an enterprise network (e.g., network 114). These clouds have ability to create and run resources (e.g., compute, storage, and/or networking resources, servers, serverless and/or other services provided by VMs) that can be accessed by orchestrator 120 using APIs provided by the respective clouds. Based on the received information, for each resource, orchestrator 120 may create a tag or a label (e.g., a character string) for the resource based on a pre-defined or configurable global tagging policy that provides intent-based resource tagging for the resources and associates the resource with the created tag by maintaining a storage database. For example, the global tagging policy may facilitate enforcement of tag policies (e.g., intent-based policies) based on one or more of the information regarding the resource, a location of the resource, and regular expressions for data associated with the resource at rest and/or in traffic. Those skilled in the art will appreciate the associated tag can be used as a global or universal tag for identification of a specific type of cloud resource or class of cloud resources regardless of the cloud provider as orchestrator 120 may push the assigned tag to the cloud service provider hosting the resource at issue. Security manager 102 may then retrieve tags from the storage database to apply appropriate security policies to the corresponding tagged resource.

[0036] In various embodiments described herein orchestrator 120 enables visibility and control of each cloud resource by the security manager 102. Embodiments of the present disclosure couple orchestrator 120 to cloud services via API and provide management, visibility, compliance and governance for cloud resources. Using direct API access, orchestrator 120 enables tag management for various resources created in public/private/hybrid cloud services. Security manager 102 may provide detailed tag analytics and management tools to ensure that tags are enforced and that resources of an enterprise are coordinated. Security manager 102 also ensures synchronization of security policy, allows security administrator to reduce complexity of security policies, and changes policy addresses for dynamic objects based on tags.

[0037] Based on the disclosure provided herein, those skilled in the art will appreciate that security manager 102 provides various features including definition, management, visibility, alerting, compliance and remediation. For example, a global tagging policy may be defined including a definition of which tags are to be associated with which resources and why such tags are to be associated with such resources.

[0038] Management features may include a single-pane of glass to provide full administration capabilities of tags and resources for all information technology (IT) systems associated with network 114. Administration capabilities may include automatic and real-time retrieval of information regarding cloud resources from multiple cloud service providers (e.g., private cloud 110, public cloud 112 and hybrid cloud 114), creating new multi-cloud tags and pushing to the tags to the cloud service providers, offering an overview of tagged and un-tagged cloud resources used in the organization, enabling users to add global tags to the cloud resources, and enforcing tag policies based on information regarding the resource, for example, the type or nature of the resource, the location of the resource, and data associated, for example, via regular expressions for the data at rest and/or in traffic associated with the resource.

[0039] Various visibility features may enable automatic on-demand cloud resource scans and examination of existing content in one or more of multiple clouds to identify tags used and resources matching user-defined criteria. Tag usage analytics may also be provide to enable a visual summary of tag usage statistics, including trends over different time-periods as well as drilldown, resource count, and usage over time.

[0040] Alerting features may enable real-time scan searching for new cloud resources without tags and alerting of an administrator regarding existence of such new untagged cloud resources. In this manner, the administrator may be provided with an opportunity to tag such resources in a timely manner.

[0041] Compliance features may include auditing of all changes to tags at various levels of granularity, for example, at the enterprise level, by cloud, by group within the enterprise, by the user making the change, etc.

[0042] Remediation features may include automatic application of a default tag's policies on cloud resources for untagged cloud resources.

[0043] FIG. 2 is a block diagram 200 illustrating functional components of a security manager 102 in accordance with an embodiment of the present invention.

[0044] In the context of the present example, security manager 102 can include a processing resource in the form of one or more processor(s) 202. Processor(s) 202 can be implemented as one or more microprocessors, microcomputers, microcontrollers, digital signal processors, central processing units, logic circuitries, and/or any devices that manipulate data based on operational instructions. Among other capabilities, processor(s) 202 are configured to fetch and execute computer-readable instructions stored in a memory 204 of the security manager 102. Memory 204 can store one or more computer-readable instructions or routines, which may be fetched and executed to create or share the data units over a network service. Memory 204 can include any non-transitory storage device including, for example, volatile memory such as RAM, or non-volatile memory such as EPROM, flash memory, and the like. In an example embodiment, memory 204 may be a local memory or may be located remotely, such as a server, a file server, a data server, and the Cloud.

[0045] Security manager 102 can also include one or more Interface(s) 206. Interface(s) 206 may include a variety of interfaces, for example, interfaces for data input and output devices, referred to as I/O devices, storage devices, and the like. Interface(s) 206 may facilitate communication of security manager 102 with various devices coupled to security manager 102. Interface(s) 206 may also provide a communication pathway for one or more components of

security manager 102. Examples of such components include, but are not limited to, processing engine(s) 208 and database 210.

[0046] Processing engine(s) 208 can be implemented as a combination of hardware and software or firmware programming (for example, programmable instructions) to implement one or more functionalities of engine(s) 208. In the examples described herein, such combinations of hardware and software or firmware programming may be implemented in several different ways. For example, the programming for the engine(s) 208 may be processor executable instructions stored on a non-transitory machine-readable storage medium and the hardware for engine(s) 208 may include a processing resource (for example, one or more processors), to execute such instructions. In the examples, the machine-readable storage medium may store instructions that, when executed by the processing resource, implement engine(s) 208. In such examples, security manager 102 can include the machine-readable storage medium storing the instructions and the processing resource to execute the instructions, or the machine-readable storage medium may be separate but accessible to security manager 102 and the processing resource. In other examples, processing engine(s) 208 may be implemented by electronic circuitry. Database 210 can include data that is either stored or generated as a result of functionalities implemented by any of the components of processing engine(s) 208.

[0047] In an example, processing engine(s) 208 can include an information receiving engine 212, a tagging engine 214, a remediation engine 216, and other engine(s) 218. Other engine(s) 218 can implement functionalities that supplement applications or functions performed by security manager 102 or processing engine(s) 208.

[0048] According to an embodiment, information receiving engine 212 can receive information regarding cloud service e.g. public cloud, private cloud and hybrid cloud associated with network. The clouds have ability to create and run resources such as VMs that can be accessed by information receiving engine 212 using direct APIs. Based on the received information, for each resource created on each cloud service, tagging engine 214 can create a unique tag for the resource based on a pre-defined global tagging policy that provides intent based resource tagging for various resources. In one example, the pre-defined global tagging policy can define tags based on one or more of the information regarding the resource, location of the resource, and data associated with the resource. Tagging engine 214 can also associate the resource with the created

tag by maintaining a database 210. In one embodiment, tagging engine 214 can push the associated tag to cloud service provider of the resource. Further, remediation engine 216 can ensure compliance of resources with the network requirements. For example, remediation engine 216 can retrieve each tag from database 210 to apply a security policy to corresponding resource.

[0049] FIGs. 3A-B illustrate exemplary representations 300 and 350 of implementation of security manager 102 in accordance with an embodiment of the present invention.

[0050] In the context of architecture representation 300, security manager 102 coupled with an orchestrator 120 can be associated with three cloud providers represented by cloud A, cloud B and cloud C. Cloud A can create VM 1 with IP address as 192.168.1.1 and VM 2 with IP address as 192.168.1.2, cloud B can create VM 3 with IP address as 192.168.2.1 and cloud can create VM 4 with IP address as 192.168.3.1 and VM5 with IP address as 192.168.3.2.

[0051] In the context of the present example, representation 350 illustrates an exemplary database maintained by orchestrator 120. As illustrated, orchestrator 120 can create a universal tag for each resource based on the cloud in which the resource is created and IP address of the resource. Mapping of the IP address and location of the resource with the created tag can be stored in the database so that the created tag can be used for the purpose of identification of the resource for implementing security policies.

[0052] FIG. 4 is a flow diagram 400 illustrating a process performed by a security manager in accordance with an embodiment of the present invention. The processing described with reference to FIG. 4 may be implemented in the form of executable instructions stored on a machine readable medium and executed by a processing resource (e.g., a microcontroller, a microprocessor, central processing unit core(s), an application-specific integrated circuit (ASIC), a field programmable gate array (FPGA), and the like) and/or in the form of other types of electronic circuitry. For example, this processing may be performed by one or more computer systems of various forms, such as the computer system 500 described with reference to FIG. 5 below.

[0053] In the context of the present example, at block 402, a cloud-tagging orchestrator service running on the security manager associated with a private network receives information regarding each cloud service provider of a multiple of cloud service providers providing cloud resources on behalf of the private network.

[0054] At block 404, a unified tags are created for the cloud resources. According to one embodiment, based on the received information, for each cloud resource of the multiple cloud resources of each cloud service provider of the multiple of cloud service, the cloud-tagging orchestrator service creates a unified tag for the resource based on a pre-defined global tagging policy. For example, a customer may create multiple instances or machine instances in multiple cloud service providers for use as web servers. One cloud service provider may by default tag, label or otherwise refer to the created machine instance based on its naming convention for various classes of machine types (e.g., E2, N2, N1). Meanwhile, another cloud service provider may by default tag, label or otherwise refer to the created instance based on its naming convention for various instance types (e.g., A1, C4, C5, D2, F1, G3, G4, H1, I3, M4, M5, P2, P3, R4, R5). The global tagging policy may unify these disparate tags by mapping them to an intent-based tag (e.g., “webserver”).

[0055] At block 406, the resources are associated with the unified tag by maintaining a storage database coupled with the cloud-tagging orchestrator service. According to one embodiment, information regarding the various instance types and/or machine types created within the various cloud service providers used by the cloud customer is stored in the storage database. The information may include a name, an IP address, a VLAN, a function (e.g., web server, development server, etc.), the unified tag to be used across multiple clouds of a hybrid cloud environment, and the like. Furthermore, the unified tags assigned to the cloud resources may be pushed, for example, via appropriate tagging/labeling APIs, to the various cloud service providers hosting the cloud resources on behalf of the enterprise.

[0056] At block 408, when applying an intent-based security policy, for example, by a network security device (e.g., a UTM appliance of the enterprises), tags specified in a security policy may be retrieved from the storage database to facilitate application of appropriate security functions (e.g., firewalling, content filtering, traffic inspection, etc.) to network traffic associated with the cloud resource at issue.

[0057] FIG. 5 illustrates an exemplary computer system 500 in which or with which embodiments of the present invention may be utilized. As shown in FIG. 5, computer system 500 includes an external storage device 510, a bus 520, a main memory 530, a read only memory 540, a mass storage device 550, a communication port 560, and a processor 570. In one embodiment,

computer system 500 may represent some portion of a network device (e.g., security manager 102 or orchestrator of FIG. 1).

[0058] Those skilled in the art will appreciate that computer system 500 may include more than one processor 570 and communication ports 560. Examples of processor 570 include, but are not limited to, an Intel® Itanium® or Itanium 2 processor(s), or AMD® Opteron® or Athlon MP® processor(s), Motorola® lines of processors, FortiSOC™ system on a chip processors or other future processors. Processor 570 may include various modules associated with embodiments of the present invention.

[0059] Communication port 560 can be any of an RS-232 port for use with a modem based dialup connection, a 10/100 Ethernet port, a Gigabit or 10 Gigabit port using copper or fiber, a serial port, a parallel port, or other existing or future ports. Communication port 560 may be chosen depending on a network, such a Local Area Network (LAN), Wide Area Network (WAN), or any network to which computer system connects.

[0060] Memory 530 can be Random Access Memory (RAM), or any other dynamic storage device commonly known in the art. Read only memory 540 can be any static storage device(s) e.g., but not limited to, a Programmable Read Only Memory (PROM) chips for storing static information e.g. start-up or BIOS instructions for processor 570.

[0061] Mass storage 550 may be any current or future mass storage solution, which can be used to store information and/or instructions. Exemplary mass storage solutions include, but are not limited to, Parallel Advanced Technology Attachment (PATA) or Serial Advanced Technology Attachment (SATA) hard disk drives or solid-state drives (internal or external, e.g., having Universal Serial Bus (USB) and/or Firewire interfaces), e.g. those available from Seagate (e.g., the Seagate Barracuda 7200 family) or Hitachi (e.g., the Hitachi Deskstar 7K1000), one or more optical discs, Redundant Array of Independent Disks (RAID) storage, e.g. an array of disks (e.g., SATA arrays), available from various vendors including Dot Hill Systems Corp., LaCie, Nexsan Technologies, Inc. and Enhance Technology, Inc.

[0062] Bus 520 communicatively couples processor(s) 570 with the other memory, storage and communication blocks. Bus 520 can be, e.g. a Peripheral Component Interconnect (PCI) / PCI Extended (PCI-X) bus, Small Computer System Interface (SCSI), USB or the like, for connecting

expansion cards, drives and other subsystems as well as other buses, such a front side bus (FSB), which connects processor 570 to software system.

[0063] Optionally, operator and administrative interfaces, e.g. a display, keyboard, and a cursor control device, may also be coupled to bus 520 to support direct operator interaction with computer system. Other operator and administrative interfaces can be provided through network connections connected through communication port 560. External storage device 510 can be any kind of external hard-drives, floppy drives, IOMEGA® Zip Drives, Compact Disc - Read Only Memory (CD-ROM), Compact Disc - Re-Writable (CD-RW), Digital Video Disk - Read Only Memory (DVD-ROM). Components described above are meant only to exemplify various possibilities. In no way should the aforementioned exemplary computer system limit the scope of the present disclosure.

[0064] While embodiments of the present invention have been illustrated and described, it will be clear that the invention is not limited to these embodiments only. Numerous modifications, changes, variations, substitutions, and equivalents will be apparent to those skilled in the art, without departing from the spirit and scope of the invention, as described in the claims.

[0065] Thus, it will be appreciated by those of ordinary skill in the art that the diagrams, schematics, illustrations, and the like represent conceptual views or processes illustrating systems and methods embodying this invention. The functions of the various elements shown in the figures may be provided through the use of dedicated hardware as well as hardware capable of executing associated software. Similarly, any switches shown in the figures are conceptual only. Their function may be carried out through the operation of program logic, through dedicated logic, through the interaction of program control and dedicated logic, or even manually, the particular technique being selectable by the entity implementing this invention. Those of ordinary skill in the art further understand that the exemplary hardware, software, processes, methods, and/or operating systems described herein are for illustrative purposes and, thus, are not intended to be limited to any particular named.

[0066] As used herein, and unless the context dictates otherwise, the term "coupled to" is intended to include both direct coupling (in which two elements that are coupled to each other contact each other) and indirect coupling (in which at least one additional element is located between the two elements). Therefore, the terms "coupled to" and "coupled with" are used

synonymously. Within the context of this document terms "coupled to" and "coupled with" are also used euphemistically to mean "communicatively coupled with" over a network, where two or more devices are able to exchange data with each other over the network, possibly via one or more intermediary device.

[0067] It should be apparent to those skilled in the art that many more modifications besides those already described are possible without departing from the inventive concepts herein. The inventive subject matter, therefore, is not to be restricted except in the spirit of the appended claims. Moreover, in interpreting both the specification and the claims, all terms should be interpreted in the broadest possible manner consistent with the context. In particular, the terms "comprises" and "comprising" should be interpreted as referring to elements, components, or steps in a non-exclusive manner, indicating that the referenced elements, components, or steps may be present, or utilized, or combined with other elements, components, or steps that are not expressly referenced. Where the specification claims refers to at least one of something selected from the group consisting of A, B, C and N, the text should be interpreted as requiring only one element from the group, not A plus N, or B plus N, etc.

[0068] While the foregoing describes various embodiments of the invention, other and further embodiments of the invention may be devised without departing from the basic scope thereof. The scope of the invention is determined by the claims that follow. The invention is not limited to the described embodiments, versions or examples, which are included to enable a person having ordinary skill in the art to make and use the invention when combined with information and knowledge available to the person having ordinary skill in the art.

CLAIMS

What is claimed is:

1. A method comprising:
 - receiving, by a cloud-tagging orchestrator service running on a security manager associated with a private network, information regarding each cloud provider of a plurality of cloud providers associated with a cloud environment used by the private network; and
 - based on the received information, for each cloud resource of a plurality of cloud resources hosted by the plurality of cloud providers on behalf of the private network:
 - retrieving, by the cloud-tagging orchestrator service, information associated with the cloud resource;
 - identifying, by the cloud-tagging orchestrator service, a unified tag of a plurality of unified tags for the cloud resource based on a pre-defined global tagging policy; and
 - assigning, by the cloud-tagging orchestrator service, the unified tag to the cloud resource via an application programming interface (API) of a cloud provider of the plurality of cloud providers hosting the resource.
2. The method of claim 1, further comprising facilitating, by the security manager, application of a security policy expressed with reference to one or more unified tags of the plurality of unified tags by retrieving information associated with a particular cloud resource of the plurality of cloud resources from a storage database.
3. The method of claim 1, wherein the cloud environment comprises a hybrid multi-cloud environment including a private cloud and a plurality of public clouds.
4. The method of claim 1, wherein said assigning further enables visibility and control for the plurality of cloud resources by the security manager.

5. The method of claim 1, wherein the pre-defined global tagging policy identifies the unified tag based on one or more of the information regarding the cloud resource, a location of the resource, and a function of the cloud resource.
6. The method of claim 1, wherein the plurality of cloud resources comprise virtual machine instances.
7. The method of claim 1, wherein the security manager comprises a cloud based security management appliance.
8. A non-transitory computer-readable storage medium embodying a set of instructions, which when executed by a processing resource of a security manager of a private network, causes the processing resource to perform a method comprising:
 - receiving information regarding each cloud provider of a plurality of cloud providers associated with a cloud environment used by the private network; and
 - based on the received information, for each cloud resource of a plurality of cloud resources hosted by the plurality of cloud providers on behalf of the private network:
 - retrieving information associated with the cloud resource;
 - identifying a unified tag of a plurality of unified tags for the cloud resource based on a pre-defined global tagging policy; and
 - assigning the unified tag to the cloud resource via an application programming interface (API) of a cloud provider of the plurality of cloud providers hosting the resource.
9. The non-transitory computer-readable storage medium of claim 8, wherein the method further comprises facilitating application of a security policy expressed with reference to one or more unified tags of the plurality of unified tags by retrieving information associated with a particular cloud resource of the plurality of cloud resources from a storage database.

10. The non-transitory computer-readable storage medium of claim 8, wherein the cloud environment comprises a hybrid multi-cloud environment including a private cloud and a plurality of public clouds.
11. The non-transitory computer-readable storage medium of claim 8, wherein said assigning further enables visibility and control for the plurality of cloud resources by the security manager.
12. The non-transitory computer-readable storage medium of claim 8, wherein the pre-defined global tagging policy identifies the unified tag based on one or more of the information regarding the cloud resource, a location of the resource, and a function of the cloud resource.
13. The non-transitory computer-readable storage medium of claim 8, wherein the plurality of cloud resources comprise virtual machine instances.
14. The non-transitory computer-readable storage medium of claim 8, wherein the security manager comprises a cloud based security management appliance.
15. A multi-tag orchestration system comprising:
 - a processing resource; and
 - a non-transitory computer-readable medium, coupled to the processing resource, having stored therein instructions that when executed by the processing resource cause the processing resource to perform a method comprising:
 - receiving information regarding each cloud provider of a plurality of cloud providers associated with a cloud environment used by a private network; and
 - based on the received information, for each cloud resource of a plurality of cloud resources hosted by the plurality of cloud providers on behalf of the private network:
 - retrieving information associated with the cloud resource;
 - identifying a unified tag of a plurality of unified tags for the cloud resource based on a pre-defined global tagging policy; and

assigning the unified tag to the cloud resource via an application programming interface (API) of a cloud provider of the plurality of cloud providers hosting the resource.

16. The system of claim 15, wherein the method further comprises facilitating application of a security policy expressed with reference to one or more unified tags of the plurality of unified tags by retrieving information associated with a particular cloud resource of the plurality of cloud resources from a storage database.
17. The system of claim 15, wherein the cloud environment comprises a hybrid multi-cloud environment including a private cloud and a plurality of public clouds.
18. The system of claim 15, wherein said assigning enables visibility and control of the plurality of cloud resources via a single pane of glass user interface.
19. The system of claim 15, wherein the pre-defined global tagging policy identifies the unified tag based on one or more of the information regarding the cloud resource, a location of the resource, and a function of the cloud resource.
20. The system of claim 15, wherein the plurality of cloud resources comprise virtual machine instances.

ABSTRACT

Systems and methods for automatically tagging cloud resources that are spread across multiple cloud platforms are provided. According to one embodiment, information regarding each cloud provider of multiple cloud providers associated with a cloud environment used by a private network is received by a cloud-tagging orchestrator service of the private network. For each cloud resource of a plurality of cloud resources hosted by the cloud providers on behalf of the private network: (i) information associated with the cloud resource is retrieved by the cloud-tagging orchestrator service; (ii) a unified tag of multiple unified tags for the cloud resource is identified by the cloud-tagging orchestrator service based on a pre-defined global tagging policy; and (ii) the unified tag is assigned by the cloud-tagging orchestrator service to the cloud resource via an application programming interface (API) of a cloud provider of the multiple cloud providers hosting the resource.

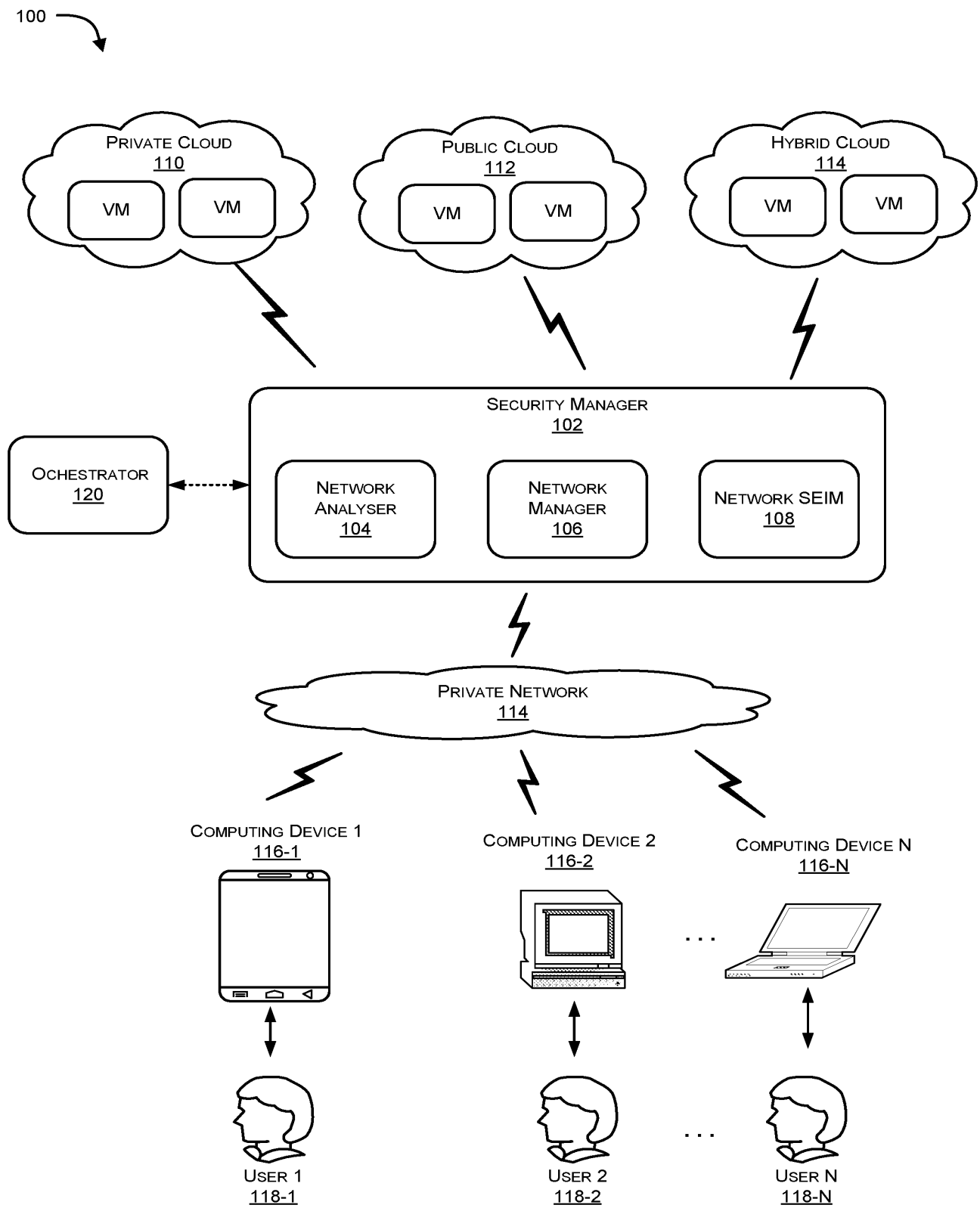


FIG. 1

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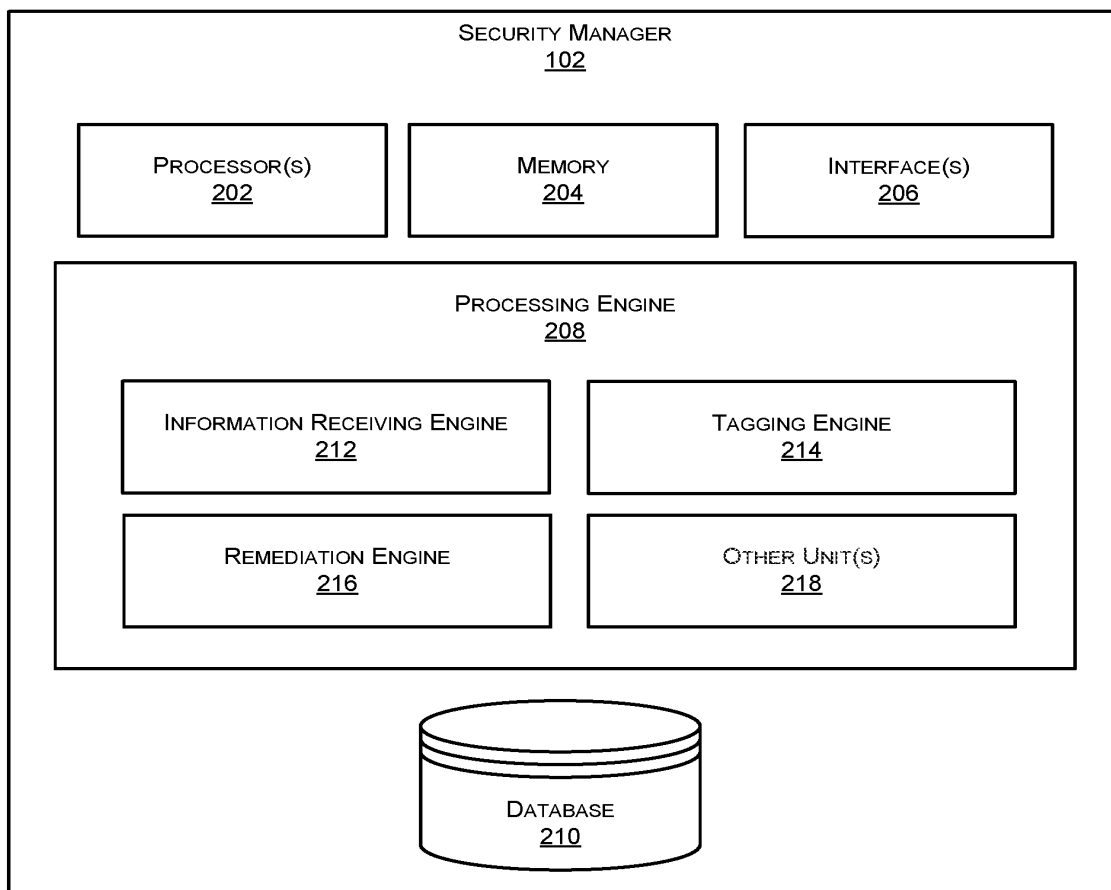


FIG. 2

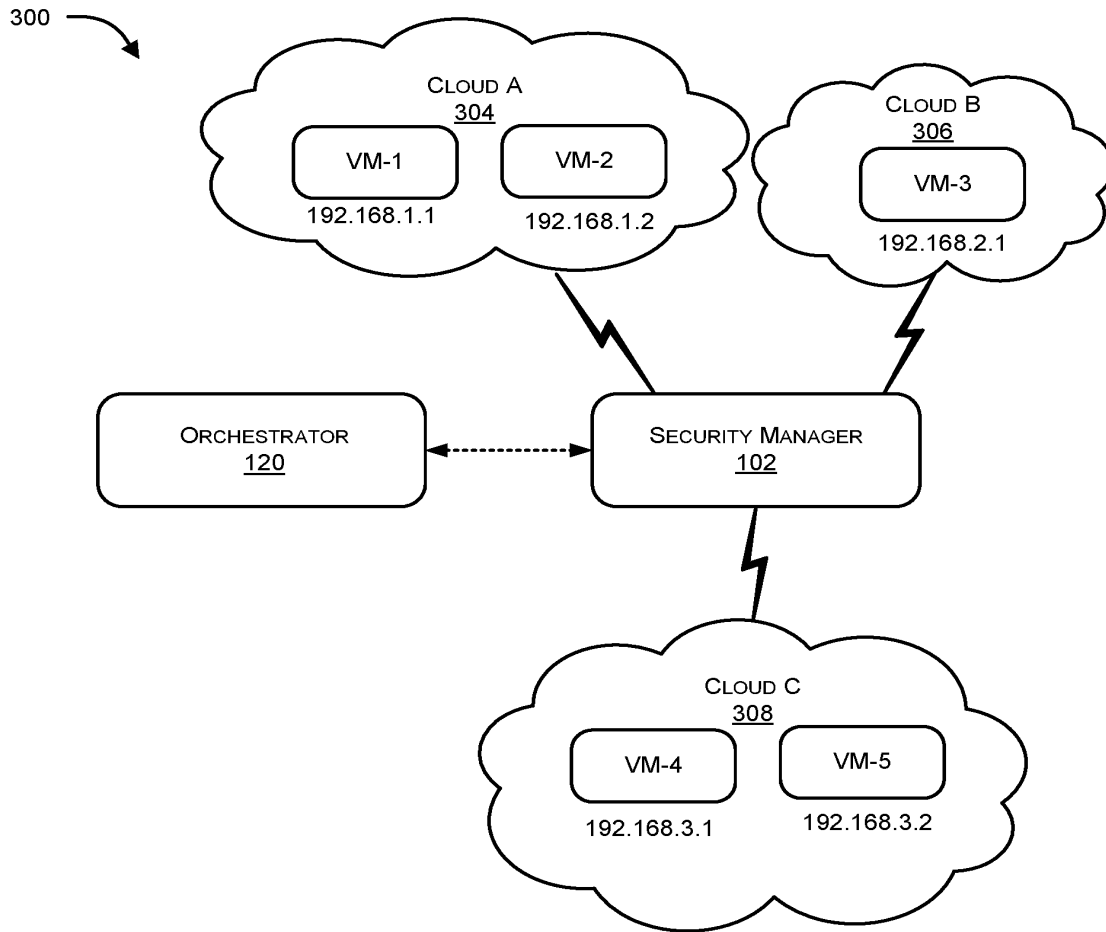


FIG. 3A

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IP ADDRESS	CLOUD SERVICES	UNIVERSAL TAG
192.168.1.1	A	CDA11
192.168.1.2	A	CDA12
192.168.2.1	B	CDB21
192.168.3.1	C	CDC31
192.168.3.2	C	CDC32

FIG. 3B

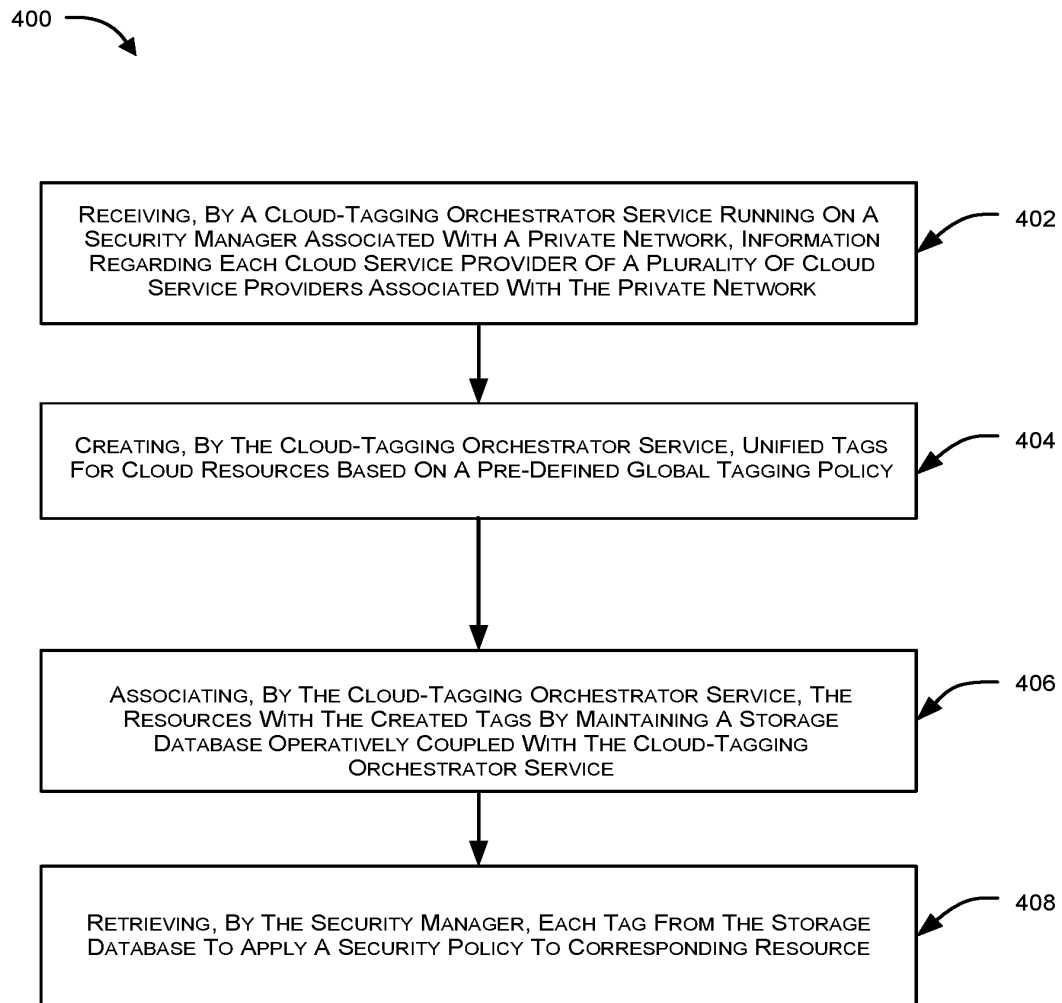


FIG. 4

500

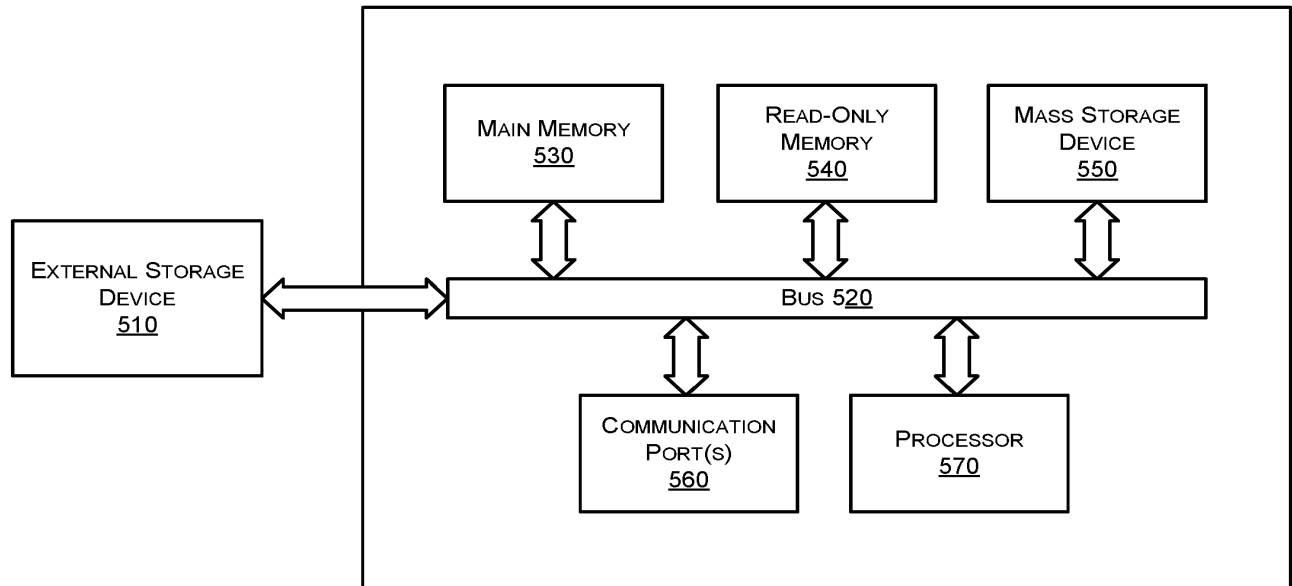


FIG. 5

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	FORT-033400
		Application Number	
Title of Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		
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	
	Ignacio	Franzoni	Martinez		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Barcelona		Country of Residence ⁱ	ES	
Mailing Address of Inventor:					
Address 1		899 Kifer Rd.			
Address 2					
City	Sunnyvale		State/Province	CA	
Postal Code	94086		Country ⁱ	US	
Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Joan	Ruiz	Sanchez		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Barcelona		Country of Residence ⁱ	ES	
Mailing Address of Inventor:					
Address 1		899 Kifer Rd.			
Address 2					
City	Sunnyvale		State/Province	CA	
Postal Code	94086		Country ⁱ	US	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					
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Correspondence Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	FORT-033400
		Application Number	
Title of Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		

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	64128		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		
Attorney Docket Number	FORT-033400	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	5	Suggested Figure for Publication (if any)	

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	64128		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	FORT-033400
		Application Number	
Title of Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		

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		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

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).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Remove
			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.
--------------------------	---

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	FORT-033400
		Application Number	
Title of Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	FORT-033400
		Application Number	
Title of Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		

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	Fortinet, Inc.		
Mailing Address Information For Applicant:			
Address 1	899 Kifer Rd.		
Address 2			
City	Sunnyvale	State/Province	CA
Country	US	Postal Code	94086
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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	FORT-033400
		Application Number	
Title of Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		

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.			
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If the Assignee or Non-Applicant Assignee is an Organization check here. ☒			
Organization Name	Fortinet, Inc.		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	899 Kifer Rd.		
Address 2			
City	Sunnyvale	State/Province	CA
Country ⁱ	US	Postal Code	94086
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Email Address			
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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	/Michael A DeSanctis/		Date (YYYY-MM-DD)	2020-06-30	
First Name	Michael A.	Last Name	DeSanctis	Registration Number	39957
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	FORT-033400
		Application Number	
Title of Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES		

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.**

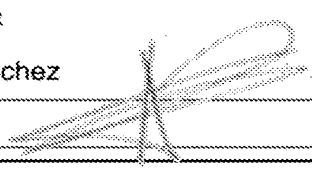
Privacy Act Statement

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).
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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.
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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	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES
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: <u>Joan Ruiz Sanchez</u> Date (Optional): _____ 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.**

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

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES
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: <u>Ignacio Franzoni Martinez</u> Date (Optional): _____ 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.

If you need assistance in completing the form, call 1-800-PTO-6196 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Fortinet, Inc.

Application No./Patent No.: _____ Filed/Issue Date: June 30, 2020

Titled: AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES

Fortinet, Inc., a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is _____. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Michael A DeSanctis/

Signature

Michael A. DeSanctis

Printed or Typed Name

June 30, 2020

Date

39957

Title or Registration 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.

ASSIGNMENT

WHEREAS, We, Ignacio Franzoni Martinez and Joan Ruiz Sanchez, have invented certain new and useful improvements for which an application entitled

“AUTOMATIC TAGGING OF CLOUD RESOURCES FOR IMPLEMENTING SECURITY POLICIES”

is about to be made for Letters Patent of the United States, the application having been executed on even date herewith, and which may be identified in the United States Patent and Trademark Office by Application No. _____, filed on _____ and further identified as Atty. Docket No. FORT-033400.

WHEREAS, Fortinet, Inc., a Corporation of the State of Delaware, and having its principal offices at 899 Kifer Rd., Sunnyvale, CA 94086 (hereafter “Assignee”), is desirous of acquiring the entire right, title and interest in and to the application, any inventions or discoveries described therein and in, to and under any and all Letters Patents to be obtained therefor;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we have sold, assigned and transferred, and by these presents do hereby sell, assign and transfer unto the Assignee, its successors and assigns:

1. the entire right, title and interest in and to the application, any inventions or discoveries described therein and the Letters Patent(s), both foreign and domestic, that may or shall issue, including all rights under the International Convention, and
2. all proceeds of the application, any inventions or discoveries described therein and the Letters Patent(s) (including but not limited to, damages for pre-patent grant infringement, all license royalties and proceeds of infringement suits); and in and to any and all causes of action (excepting claims upon the United States of America) for past, present, and future infringement of any of the Letters Patent(s), or relating to any inventions or discoveries described therein, including the right to collect royalties and seek injunctive relief, for all such infringements and the right to sue on all such causes of action for their own use and benefit and the use and benefit of their successors, assigns and legal representatives,

We do hereby authorize and request the Commissioner of Patents to issue the Letters Patent(s) to the Assignee in accordance herewith.

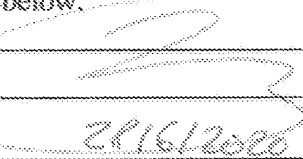
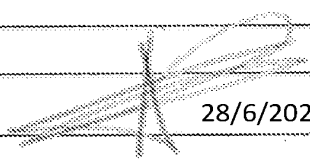
We hereby authorize the Assignee, its successors and assigns or anyone it may properly designate, to insert in this instrument the filing date and Application No. of the application when ascertained.

We further authorize the Assignee, its successors and assigns, or anyone it may properly designate, to apply for Letters Patent, in its own name, if desired, in any and all foreign

countries, and additionally to claim the filing date of the United States application and/or otherwise take advantage of the provisions of the International Convention.

We do hereby covenant and agree with the Assignee, its successors and assigns, that we will not execute any writing or do any act whatsoever conflicting with these presents, and that we or our executors or administrators will, at any time upon request, without further or additional consideration, but at the expense of the Assignee, its successors and assigns, execute such additional writings and do such additional acts as the Assignee, its successors and assigns, may deem necessary or desirable to perfect the Assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining original, continuation, divisional, reissued, reexamined, substitute or extended Letters Patent(s) of the United States, or of any and all foreign countries on the invention, and in enforcing any rights, occurring as a result of such applications or patents, by giving testimony in any proceedings or transactions involving such applications or patents.

In Witness Whereof, We have hereunto set our hands and affixed our seals on the date written below.

Signature:		Signature:	
Date:	28/6/2020	Date:	28/6/2020
Full Name:	Ignacio Franzoni Martinez	Full Name:	Joan Ruiz Sanchez
Residence:	Barcelona, SPAIN	Residence:	Barcelona, SPAIN
Mailing Address:	Fortinet, Inc. 899 Kifer Rd. Sunnyvale, CA UNITED STATES	Mailing Address:	Fortinet, Inc. 899 Kifer Rd. Sunnyvale, CA UNITED STATES