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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330,998	11/29/2022	11516231	15635.0003-01000	3062

22852 7590 11/09/2022
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

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

Avi SHUA, Tel Aviv, ISRAEL;

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

Orca Security LTD., Tel Aviv, ISRAEL;

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.



United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :Simret Direta

Refund Accounting Date:11/01/2022

Effective Date	Sale Item Reference Number	Refund Total
10/14/2022	17330998	\$680.00

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method	Account Number
I2022A1929371200	2801	RCE- 1ST REQUEST	\$680.00		*****1007



United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :Simret Direta

Sale Adjustment Accounting Date:11/01/2022

Effective Date	Sale Accounting Date	Sale Item Reference Number
10/14/2022	11/01/2022	17330998

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I2022A1929371200	2801	RCE- 1ST REQUEST	\$680.00	



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330,998	05/26/2021	Avi SHUA	15635.0003-01000	3062
22852	7590	10/26/2022	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			SAADOUN, HASSAN	
			ART UNIT	PAPER NUMBER
			2435	
			NOTIFICATION DATE	DELIVERY MODE
			10/26/2022	ELECTRONIC

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

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

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

regional-desk@finnegan.com

Corrected Notice of Allowability	Application No. 17/330,998	Applicant(s) SHUA, Avi	
	Examiner HASSAN SAADOUN	Art Unit 2435	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 10/14/2022.
☐ 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 1-4,6-15 and 17-21. 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 <u>10/14/2022</u> . 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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/HASSAN SAADOUN/ Examiner, Art Unit 2435	/JOSEPH P HIRL/ Supervisory Patent Examiner, Art Unit 2435
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	17/330,998
				Filing Date	May 26, 2021
				First Named Inventor	Avi SHUA
				Art Unit	2435
				Examiner Name	SAADOUN, HASSAN
Sheet	1	of	1	Attorney Docket Number	15635.0003-01000

U.S. PATENTS					
Examiner Initials*	Cite No.	Document Number	Issue Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <i>(if known)</i>			

U.S. PUBLISHED PATENT APPLICATIONS					
Examiner Initials*	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <i>(if known)</i>			
		US 2017/0111384 A1	04-20-2017	Loureiro et al.	
		US 2017/0031704 A1	02-02-2017	Sudhakaran et al.	

Note: Submission of copies of U.S. Patents and published U.S. Patent Applications is not required.

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	Translation
		Country Code Number Kind Code <i>(if known)</i>				

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation
		Non-Final Office Action dated August 29, 2022, in U.S. Patent Application No. 17/361,861, Examiner WU, BENJAMIN C.	N/A

Examiner Signature	/HASSAN SAADOUN/	Date Considered	10/19/2022
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :Charmise Carter

Sale Accounting Date:10/17/2022

Sale Item Reference Number
17330998

Effective Date
10/14/2022

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I20220GB42214824	2806	SUBMISSION- INFORMATION DISCLOSURE STMT	\$130.00	Deposit Account

INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	17/330,998
				Filing Date	May 26, 2021
				First Named Inventor	Avi SHUA
				Art Unit	2435
				Examiner Name	SAADOUN, HASSAN
Sheet	1	of	1	Attorney Docket Number	15635.0003-01000

U.S. PATENTS					
Examiner Initials*	Cite No.	Document Number	Issue Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <i>(if known)</i>			

U.S. PUBLISHED PATENT APPLICATIONS					
Examiner Initials*	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <i>(if known)</i>			
		US 2017/0111384 A1	04-20-2017	Loureiro et al.	
		US 2017/0031704 A1	02-02-2017	Sudhakaran et al.	

Note: Submission of copies of U.S. Patents and published U.S. Patent Applications is not required.

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	Translation
		Country Code Number Kind Code <i>(if known)</i>				

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation
		Non-Final Office Action dated August 29, 2022, in U.S. Patent Application No. 17/361,861, Examiner WU, BENJAMIN C.	N/A

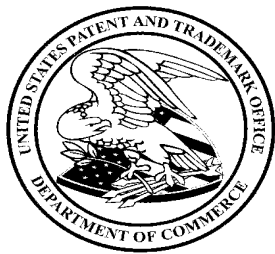
Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication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

Electronic Patent Application Fee Transmittal

Application Number:	17330998			
Filing Date:	26-May-2021			
Title of Invention:	TECHNIQUES FOR SECURING VIRTUAL MACHINES			
First Named Inventor/Applicant Name:	Avi SHUA			
Filer:	Christopher Charles Johns/Michelle Daniels			
Attorney Docket Number:	15635.0003-01000			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
PETITION FEE-37CFR 1.17(H) (GROUP II)	2464	1	70	70
RCE- 1ST REQUEST	2801	1	680	680
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 (\$)				750



UNITED STATES PATENT AND TRADEMARK OFFICE

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

Decision Date : October 14, 2022

In re Application of :

Avi SHUA

DECISION ON PETITION

UNDER CFR 1.313(c)(2)

Application No : 17330998

Filed : 26-May-2021

Attorney Docket No : 15635.0003-01000

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed October 14, 2022 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED**.

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 2435 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt

EFS ID:	46820436
Application Number:	17330998
International Application Number:	
Confirmation Number:	3062
Title of Invention:	TECHNIQUES FOR SECURING VIRTUAL MACHINES
First Named Inventor/Applicant Name:	Avi SHUA
Customer Number:	22852
Filer:	Christopher Charles Johns/Michelle Daniels
Filer Authorized By:	Christopher Charles Johns
Attorney Docket Number:	15635.0003-01000
Receipt Date:	14-OCT-2022
Filing Date:	26-MAY-2021
Time Stamp:	13:07:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$750
RAM confirmation Number	E20220DD06584586
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	ePetition Request Form	petition-request.pdf	39812	no	2
			9f7592510439862476c267d9e7443773aa80edcd		
Warnings:					
Information:					
2	Quick Path Information Disclosure Statement	Certification.pdf	186607	no	2
			8874eaa257da1a4ceb9b4a19fe110d09abdd5732		
Warnings:					
Information:					
3	Request for Continued Examination (RCE)	RCE.pdf	1667188	no	3
			9c82afe0419e112ff66bdd83bd967019e1b18c4b		
Warnings:					
Information:					
4	Transmittal Letter	QPIDS_Transmittal.pdf	17180	no	2
			a473694bcc18be957f4eff82e5ac7a080e715c01		
Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Form (SB08)	sb08.pdf	25843	no	1
			40fee10cdf1610f0f98f8b96e028ac682ece1f0		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
6	Non Patent Literature	Non-Final_Rejection.pdf	397892	no	15
			d56dbed71f01b9841e325c7ea81598dd924329c2		
Warnings:					

Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	40216	no	2
			1fb90191b4c729548434d7ca23c8c1be9a35bec4		
Warnings:					
Information:					
			Total Files Size (in bytes):		
			2374738		
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.					

Doc Code: PET.AUTO Document Description: Petition automatically granted by EFS-Web		PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request	PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)	
Application Number	17330998	
Filing Date	26-May-2021	
First Named Inventor	Avi SHUA	
Art Unit	2435	
Examiner Name	HASSAN SAADOUN	
Attorney Docket Number	15635.0003-01000	
Title	TECHNIQUES FOR SECURING VIRTUAL MACHINES	
An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary. APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c). A grantable petition requires the following items: (1) Petition fee; and (2) One of the following reasons: (a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable; (b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or (c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).		
Petition Fee		
☒ Small Entity		
☐ Micro Entity		
☐ Regular Undiscounted		
Reason for withdrawal from issue		

- ☐ One or more claims are unpatentable
- ☒ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees)
- ☐ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).

RCE request, submission, and fee.

- ☐ I certify, in accordance with 37 CFR 1.4(d)(4) that :
- ☐ The RCE request ,submission, and fee have already been filed in the above-identified application on
- ☒ Are attached.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

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

- ☐ An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application.
- ☒ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity.
- ☐ A sole inventor
- ☐ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application
- ☐ A joint inventor; all of whom are signing this e-petition

Signature	/Christopher C. Johns/
Name	Christopher C. Johns
Registration Number	68664

CERTIFICATION AND REQUEST FOR CONSIDERATION OF AN INFORMATION DISCLOSURE STATEMENT FILED AFTER PAYMENT OF THE ISSUE FEE UNDER THE QPIDS PROGRAM	
Non-Provisional Application Number: 17/330,998	Filing Date: May 26, 2021
First Named Inventor: Avi SHUA	Title of Invention: TECHNIQUES FOR SECURING VIRTUAL MACHINES
THE UNDERSIGNED HEREBY CERTIFIES AND REQUESTS THE FOLLOWING FOR THE ABOVE-IDENTIFIED APPLICATION. 1. Consideration is requested of the information disclosure statement (IDS) submitted herewith, which is being filed after payment of the issue fee. 2. Check the box next to the appropriate selection: ☒ Each item of information contained in the IDS 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 IDS. See 37 CFR 1.97(e)(1). OR ☐ No item of information contained in the IDS 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 IDS was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the IDS. See 37 CFR 1.97(e)(2). OR ☐ See attached certification statement in compliance with 37 CFR 1.97(e). 3. Please charge the IDS fee set forth in 37 CFR 1.17(p) to Deposit Account No. <u>06-0916</u>. 4. A Petition to Withdraw from Issue After Payment of the Issue Fee (37 CFR 1.313(c)(2)), including the petition fee set forth in 37 CFR 1.17(h), is submitted herewith as a Web-based ePetition. WARNING: Do <u>not</u> submit the petition as a follow-on paper via EFS-Web. Submit the petition as a Web-based ePetition by signing on to EFS-Web as a registered user, selecting the radio button next to "Existing application/patent," and then selecting the radio button next to "ePetition (for automatic processing and immediate grant, if all petitions requirements are met)." Failure to use the Web-based ePetition interface will result in automatic entry of the RCE. 5. A request for continued examination (RCE) under 37 CFR 1.114 and the RCE fee under 37 CFR 1.17(e) are submitted herewith. 6. The RCE will be treated as a "conditional" RCE. In the event the examiner determines that any item of information contained in the IDS necessitates the reopening of prosecution in the application, the undersigned understands that (i) the RCE will be processed and treated as an RCE under 37 CFR 1.114 and therefore (ii) the IDS fee under 37 CFR 1.17(p) will be returned in accordance with 37 CFR 1.97(b)(4). In the event that no item of information in the IDS necessitates reopening prosecution, the undersigned understands that the RCE will not be processed and the RCE fee under 37 CFR 1.17(e) will be returned. 7. This certification and request is being filed as a Web-based ePetition and is not accompanied by an amendment to the application. Inclusion of an amendment will result in automatic entry of the RCE.	
Signature /Christopher C. Johns/	Date 14-October-2022
Name (Print/Typed) Christopher C. Johns	Practitioner Registration Number (If applicable) 68,664
Note: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required in accordance with 37 CFR 1.33 and 11.18. Please see 37 CFR 1.4(d) for the form of the signature. If necessary, submit multiple forms for more than one signature, see below.*	
☐ *Total of <u>1</u> forms are submitted.	

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Avi SHUA	)	Group Art Unit: 2435
	)	
Application No.: 17/330,998	)	Examiner: SAADOUN, HASSAN
	)	
Filed: May 26, 2021	)	Confirmation No.: 3062
	)	
For: TECHNIQUES FOR SECURING	)	
VIRTUAL MACHINES	)	

Mail Stop Issue Fee

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

Commissioner:

QUICK PATH INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. § 1.56, Applicant brings to the attention of the Examiner the documents listed on the attached listing. This Information Disclosure Statement is being filed along with a Certification and Request for Consideration of an Information Disclosure Statement Filed After Payment of the Issue Fee Under the QPIDS Pilot Program and is accompanied by a fee payment of \$260.00. This Information Disclosure Statement includes a statement as specified by Section 1.97(e).

The following constitutes the statement specified by 37 C.F.R. § 1.97(e)(2). No item of information contained in the IDS 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 IDS was known to any individual designated in 37 CFR 1.56(c) more

than three months prior to the filing of this Information Disclosure Statement. See 37 CFR 1.97(e)(2).

A copy of the listed non-patent literature document is attached.

Applicant respectfully requests that the Examiner consider the listed documents and indicate that they were considered by making appropriate notations on the attached listing.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the documents as prior art against any claims in the application and Applicant determines that the cited documents do not constitute "prior art" under United States law, applicant reserves the right to present to the office the relevant facts and law regarding the appropriate status of such documents.

If there is any fee due in connection with the filing of this Statement, please charge the fee to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: 14 October 2022

By: /Christopher C. Johns/
Christopher C. Johns
Reg. No. 68,664
(202) 408-4155



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330,998	11/01/2022	11489856	15635.0003-01000	3062

22852 7590 10/12/2022

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

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

Avi SHUA, Tel Aviv, ISRAEL;

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

Orca Security LTD., Tel Aviv, ISRAEL;

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	Group Art Unit: 2435
Avi SHUA	)	
	)	Examiner: Hassan SAADOUN
Application No.: 17/330,998	)	
	)	Confirmation No.: 3062
Filed: November 10, 2022	)	
	)	
For: TECHNIQUES FOR SECURING	)	VIA EFS-WEB
VIRTUAL MACHINES	)	
	)	

Mail Stop Issue Fee

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

Commissioner:

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Applicant thanks the Examiner for the Notice of Allowance and Statement of Reasons for Allowance dated August 10, 2022. Without withdrawing the allowed claims from issue, Applicant submits these comments.

In the Notice of Allowance, the Examiner made certain characterizations and assertions regarding the allowed claims. Although Applicant agrees with the Examiner's ultimate conclusion that the claims are patentable, Applicant does not necessarily agree with all of the characterizations and assertions made or suggested in regard to the Examiner's reasons for allowance. For instance, Applicant submits that each of the allowed claims is patentable based on the subject matter defined by the claim language

and the combination of recitations within the claims, and not based solely on the recitations discussed during examination.

Should the Examiner disagree with the Applicant's comments on the Examiner's Statement of Reasons for Allowance, the Examiner is invited to contact the undersigned, in order to resolve such disagreement.

Please charge any fees due in connection with the filing of this paper to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: September 29, 2022

By: /Christopher C. Johns/
Christopher C. Johns
Reg. No. 68,664
(202) 408-4000

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)

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.

22852 7590 08/10/2022

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330.998	05/26/2021	Avi SHUA	15635.0003-01000	3062

TITLE OF INVENTION: TECHNIQUES FOR SECURING VIRTUAL MACHINES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	11/10/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAADOUN, HASSAN	2435	726-023000

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/AIA/122 or PTO/SB/122) attached.

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

2. For printing on the patent front page, list

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

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

1 Finnegan, Henderson,
2 Farabow, Garrett &
3 Dunner, L.L.P.

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)

Orca Security LTD.

Tel Aviv, ISRAEL

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. 06-0916

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 /Christopher C. Johns/

Date 29 September 2022

Typed or printed name Christopher C. Johns

Registration No. 68,664



ELECTRONIC PAYMENT RECEIPT

APPLICATION #
17/330,998

RECEIPT DATE / TIME
09/29/2022 03:16:10 PM ET

ATTORNEY DOCKET #
15635.0003-01000

Title of Invention

TECHNIQUES FOR SECURING VIRTUAL MACHINES

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 3062

FILED BY Dena Bohannon

PATENT CENTER # 61018445

AUTHORIZED BY Christopher Johns

CUSTOMER # 22852

FILING DATE 05/26/2021

CORRESPONDENCE
ADDRESS -

FIRST NAMED
INVENTOR Avi SHUA

Payment Information

PAYMENT METHOD
CARD / 1007

PAYMENT TRANSACTION ID
E20229SF16320520

PAYMENT AUTHORIZED BY
Dena Bohannon

FEE CODE	DESCRIPTION	ITEM PRICE(\$)	QUANTITY	ITEM TOTAL(\$)
2501	UTILITY ISSUE FEE	600.00	1	600.00
TOTAL AMOUNT:				\$600.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage

submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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



UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
17/330,998

RECEIPT DATE / TIME
09/29/2022 03:16:10 PM ET

ATTORNEY DOCKET #
15635.0003-01000

Title of Invention

TECHNIQUES FOR SECURING VIRTUAL MACHINES

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 3062

FILED BY Dena Bohannon

PATENT CENTER # 61018445

FILING DATE 05/26/2021

CUSTOMER # 22852

FIRST NAMED
INVENTOR Avi SHUA

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Christopher Johns

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
15635000301_Comments.pdf	2	Miscellaneous Incoming Letter	18 KB
15635000301_IFtrans.pdf	1	Issue Fee Payment (PTO-85B)	204 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
15635000301_Comments.pdf	37C7606FC6DE9688DEAFD44F4293A0B04B0A7026A925D7386 4A32A50100DF92192090A06466ACB35469E037437DB1680FEB 55E2E949343AA723F86700921F7A1

15635000301_IFtrans.pdf

E648DA7EA2C2F9E73BA45FFEC5539F5063285BF693CEE56B7
FCFCE2E34F76BA5F4F57D72C9AD03A052CC6EE14CB7027DA
E043E6388A3850675F49FE7AC5BE53C

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

National Stage of an International Application under 35 U.S.C. 371

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

New International Application Filed with the USPTO as a Receiving Office

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



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330,998	05/26/2021	Avi SHUA	15635.0003-01000	3062

7590 08/25/2022
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER

SAADOUN, HASSAN

ART UNIT	PAPER NUMBER
----------	--------------

2435

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

08/25/2022

ELECTRONIC

NOTICE OF NON-COMPLIANT INFORMATION DISCLOSURE STATEMENT

An Information Disclosure Statement (IDS) filed 8/22/2022 in the above-identified application fails to meet the requirements of 37 CFR 1.97(d) for the reason(s) specified below. Accordingly, the IDS will be placed in the file, but the information referred to therein has not been considered.

The IDS is not compliant with 37 CFR 1.97(d) because:

☒ The IDS lacks a statement as specified in 37 CFR 1.97(e).

☐ The IDS lacks the fee set forth in 37 CFR 1.17(p).

☐ The IDS was filed after the issue fee was paid. Applicant may wish to consider filing a petition to withdraw the application from issue under 37 CFR 1.313(c) to have the IDS considered. See MPEP 1308.

N. Horne, for

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	17/330,998
				Filing Date	May 26, 2021
				First Named Inventor	Avi SHUA
				Group Art Unit	2435
				Examiner Name	Saadoun, Hassan
Sheet	1	of	1	Attorney Docket Number	15635.0003-01000

U.S. PATENTS					
Examiner Initials*	Cite No. ¹	Document Number	Issue or Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		US-10/944,778 B1	03-2021	Golan, Oron	
		US-10/536,471 B1	01-2020	Derbeko, Philip	
		US-11/068,353 B1	07-2021	Ved, Amber	
		US-9/268,689 B1	02-2016	Chen, Grace Jing	
		US-10/469,304 B1	11-2019	Kempe, Gregory Jonathan	

U.S. PUBLISHED PATENT APPLICATIONS					
Examiner Initials*	Cite No. ³	Document Number	Issue or Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ⁴ (if known)			
		US-2017/0103212 A1	04-2017	Deng, Yu	
		US-2016/0094568 A1	03-2016	Balasubramanian, Swaminathan	
		US-2016/0004449 A1	01-2016	Lakshman, Avinash	
		US-2013/0191643 A1	07-2013	Song, Zhexuan	
		US-2018/0137032 A1	05-2018	Tannous, Samuel Joseph	
		US-2008/0189788 A1	08-2008	Bahl, Pradeep	
		US-2016/0364255 A1	12-2016	Chefalas, Thomas E.	
		US-2011/0289584 A1	11-2011	Palagummi, Siva Sai Prasad	

Note: Submission of copies of U.S. Patents and published U.S. Patent Applications is not required.

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	Translation ⁸
		Country Code ⁵ Number ⁶ Kind Code ⁷ (if known)				

NONPATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation ⁹

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

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

PTO Notes regarding this form:

¹ Applicant's unique citation designation number (optional).

² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04.

³ Applicant's unique citation designation number (optional).

⁴ See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04.

⁵ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

⁶ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

⁷ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible.

⁸ Applicant is to place a check mark here if English language Translation is attached.

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 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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.**



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
17/330,998

RECEIPT DATE / TIME
08/22/2022 04:18:23 PM ET

ATTORNEY DOCKET #
15635.0003-01000

Title of Invention

TECHNIQUES FOR SECURING VIRTUAL MACHINES

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 3062

FILED BY Sharon Horton

PATENT CENTER # 60895143

FILING DATE 05/26/2021

CUSTOMER # 22852

FIRST NAMED
INVENTOR Avi SHUA

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Christopher Johns

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
15635.0003-01000 As-filed - IDS Transmittal 08.22.2022.pdf	2	Transmittal Letter	92 KB
15635.0003-01000 As-filed - PTO-SB08 NLP revised 08.22.2022.pdf	2	Information Disclosure Statement (IDS) Form (SB08)	113 KB

Warning: This is not a USPTO supplied IDS fillable form. Data in the form cannot be automatically loaded to other USPTO systems.

Digest

DOCUMENT**MESSAGE DIGEST(SHA-512)**

15635.0003-01000 As-filed - IDS Transmittal 08.22.2022.pdf	F4E44CE037328F38146E4FB87B7916E2127A8237446755E5318 3502F75C2608A823CDD8F0472DB2DD069B7B373D46D798C27 9460A43F6227C2CB334534A98A63
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15635.0003-01000 As-filed - PTO-SB08 NLP revised 08.22.2022.pdf	AB0D10E7C6FDAC5B2F399BADC15351C3B6C47297ED990DA6 D008C3FEBCCB704512D279022C7B5609FA36A9B1242ED5AB7 4F768972E6D8B8F056DA26EED20E10A
---	--

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

National Stage of an International Application under 35 U.S.C. 371

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

New International Application Filed with the USPTO as a Receiving Office

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Avi SHUA	)	Group Art Unit: 2435
	)	
Application No.: 17/330,998	)	Examiner: Saadoun, Hassan
	)	
Filed: May 26, 2021	)	Confirmation No.: 3062
	)	
For: TECHNIQUES FOR SECURING	)	
VIRTUAL MACHINES	)	

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

Via EFS-Web

Dear Commissioner:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §§ 1.56, Applicant submits the documents on the attached listing and requests that the documents be made of record and placed in the file of this application.

Furthermore, because the related applications associated with this submission are identified in Office records as sharing priority with the instant application, it is assumed that the Examiner has already considered these related applications and the references cited during their prosecution to the patentability of the claims of the instant application. Nevertheless, in a further abundance of caution, Applicant identifies the related applications below.

<i>Application No.</i>	<i>Filing date</i>
16/585,967	09/27/2019
17/361,861	06/29/2021

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the documents as prior art against any claim in the application and Applicant determines that the cited documents do not constitute "prior art" under United States law, Applicant reserves the right to present to the U.S. Patent and Trademark Office the relevant facts and law regarding the appropriate status of such documents.

Please charge any fee due in connection with the filing of this Statement to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: August 22, 2022

By: /Christopher C. Johns/
Christopher C. Johns
Reg. No. 68,664
Phone: 202-408-4000



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NOTICE OF ALLOWANCE AND FEE(S) DUE

22852 7590 08/10/2022
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER

SAADOUN, HASSAN

ART UNIT

PAPER NUMBER

2435

DATE MAILED: 08/10/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330,998	05/26/2021	Avi SHUA	15635.0003-01000	3062

TITLE OF INVENTION: TECHNIQUES FOR SECURING VIRTUAL MACHINES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	11/10/2022

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. 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)

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.

22852 7590 08/10/2022

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

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)

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17/330.998	05/26/2021	Avi SHUA	15635.0003-01000	3062

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nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	11/10/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAADOUN, HASSAN	2435	726-023000

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/AIA/122 or PTO/SB/122) attached.

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

2. For printing on the patent front page, list

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

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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22852	7590	08/10/2022	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			SAADOUN, HASSAN	
			ART UNIT	PAPER NUMBER
			2435	

DATE MAILED: 08/10/2022

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. 17/330,998	Applicant(s) SHUA, Avi	
	Examiner HASSAN SAADOUN	Art Unit 2435	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 07/22/2022.
☐ 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 1-4,6-15 and 17-21. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

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

Certified copies:

a) ☐ All b) ☐ Some* c) ☐ None of the:

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

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

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

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892) 2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____ 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____	5. ☐ Examiner's Amendment/Comment 6. ☒ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____
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/HASSAN SAADOUN/ Examiner, Art Unit 2435	/JOSEPH P HIRL/ Supervisory Patent Examiner, Art Unit 2435
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Notice of Pre-AIA or AIA Status

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

Response to Argument

2. Applicant's arguments filed on **07/22/2022** with respect to **claims 1-4, 6-15 and 17-21 Non-Statutory Double Patenting** rejection with respect to **claims 1-4, 6-15 and 17-21** of copending application **16/585,967** have been fully considered and persuasive. The rejection has been withdrawn.

3. **Note:** The terminal disclaimer filed on **06/24/2022** disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number **16/585,967** has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

4. Claims **1-4, 6-15 and 17-21** are allowed.

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

5. The closest prior arts made of records are, Golan et al. (U.S Patent No. **10,944,778 B1**, referred to as **Golan**), Derbeko et al. (U.S Patent No. **10,536,471 B1**, referred to as **Derbeko**) and Deng et al. (U.S Pub No. **2017/0103212 A1**, referred to as **Deng**).

Golan discloses a method and system for implementing risk-based cyber security. Specifically, the disclosed method and system entail evaluating risk as a decision threshold for conducting cyber security assessments of system images within cloud computing environments. Further, the disclosed method and system pivot on intelligence pertaining to the latest cyber threats and/or vulnerabilities found worldwide.

Derbeko discloses a system and a method of detecting malware in a virtual machine (VM), the method comprising periodically creating snapshots of the VM, analyzing each of the snapshots in comparison to one or more previous snapshots to determine whether anomalies exist, and based on a threshold amount of anomalies detected, scanning the VM to determine whether malware is detected.

6. However, regarding claims **1 and 11**, the prior art of **Golan, Derbeko and Deng** when taken in the context of the claim as a whole do not disclose nor suggest, determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment; taking a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located; accessing the snapshot of the virtual disk based on the determined location; analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and alerting detected potential cyber threats based on a determined priority.

7. Regarding claim **12**, the prior art of **Golan, Derbeko** and **Deng** when taken in the context of the claim as a whole do not disclose nor suggest, “determine a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment; take a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located; access the snapshot of the virtual disk based on the determined location; analyze the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and alert detected potential cyber threats based on a determined priority.”.

8. **Claims 2-4 and 6-10** depend on **claim 1** and **claims 13-15 and 17-21** depend on **claim 12**, and are of consequence allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HASSAN SAADOUN whose telephone number is (571)272-8408. The examiner can normally be reached Mon-Fri 9:00-5:00.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hirl can be reached on 571-272-3685. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HASSAN SAADOUN/
Examiner, Art Unit 2435

/JOSEPH P HIRL/
Supervisory Patent Examiner, Art Unit 2435

Notice of References Cited	Application/Control No. 17/330,998		Applicant(s)/Patent Under Reexamination SHUA, Avi	
	Examiner HASSAN SAADOUN		Art Unit 2435	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-10944778-B1	03-2021	Golan; Oron	H04L63/1491	1/1
*	B	US-10536471-B1	01-2020	Derbeko; Philip	G06F21/53	1/1
*	C	US-20170103212-A1	04-2017	Deng; Yu	G06F3/0619	1/1
*	D	US-11068353-B1	07-2021	Ved; Amber	G06F9/45558	1/1
*	E	US-20160094568-A1	03-2016	Balasubramanian; Swaminathan	G06F9/45558	726/23
*	F	US-20160004449-A1	01-2016	LAKSHMAN; Avinash	G06F3/0604	711/162
*	G	US-20130191643-A1	07-2013	Song; Zhexuan	H04L9/3265	713/176
	H					
	I					
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	K					
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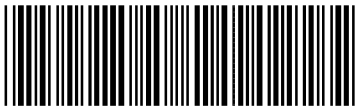
FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

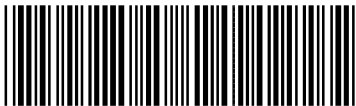
*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Issue Classification 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi	
	Examiner HASSAN SAADOUN	Art Unit 2435	

CPC						
Symbol					Type	Version
H04L	/	63	/	1416	F	2013-01-01
G06F	/	9	/	45558	I	2013-01-01
H04L	/	63	/	1441	I	2013-01-01
G06F	/	16	/	128	I	2019-01-01
G06F	/	11	/	1464	I	2013-01-01
H04L	/	63	/	1433	I	2013-01-01
G06F	/	2009	/	45583	A	2013-01-01
G06F	/	2009	/	45587	A	2013-01-01
G06F	/	2009	/	45595	A	2013-01-01
G06F	/	2009	/	45562	A	2013-01-01
G06F	/	2009	/	45591	A	2013-01-01
G06F	/	2201	/	84	A	2013-01-01

CPC Combination Sets					
Symbol				Type	Set

/HASSAN SAADOUN/ Examiner, Art Unit 2435 (Assistant Examiner)	28 July 2022 (Date)	Total Claims Allowed: 19	
/JOSEPH P HIRL/ Supervisory Patent Examiner, Art Unit 2435 (Primary Examiner)	01 August 2022 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

Issue Classification 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

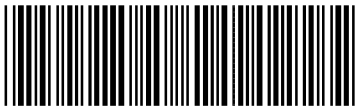
INTERNATIONAL CLASSIFICATION			
CLAIMED			
H04L	/	9	/ 40
G06F	/	9	/ 455

NON-CLAIMED			
	/		/

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
726	23

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

/HASSAN SAADOUN/ Examiner, Art Unit 2435 (Assistant Examiner)	28 July 2022 (Date)	Total Claims Allowed: 19	
/JOSEPH P HIRL/ Supervisory Patent Examiner, Art Unit 2435 (Primary Examiner)	01 August 2022 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

Issue Classification 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

☐ 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	1	9	10	17	19										
2	2	10	11	18	20										
3	3	11	12	19	21										
4	4	12	13												
-	5	13	14												
5	6	14	15												
6	7	-	16												
7	8	15	17												
8	9	16	18												

/HASSAN SAADOUN/ Examiner, Art Unit 2435 (Assistant Examiner)	28 July 2022 (Date)	Total Claims Allowed: 19	
/JOSEPH P HIRL/ Supervisory Patent Examiner, Art Unit 2435 (Primary Examiner)	01 August 2022 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

<i>Index of Claims</i> 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	02/24/2022	06/23/2022	07/28/2022						
	1	✓	✓	=						
	2	✓	✓	=						
	3	✓	✓	=						
	4	✓	✓	=						
	5	✓	-	-						
	6	✓	✓	=						
	7	✓	✓	=						
	8	✓	✓	=						
	9	✓	✓	=						
	10	✓	✓	=						
	11	✓	✓	=						
	12	✓	✓	=						
	13	✓	✓	=						
	14	✓	✓	=						
	15	✓	✓	=						
	16	✓	-	-						
	17	✓	✓	=						
	18	✓	✓	=						
	19	✓	✓	=						
	20	✓	✓	=						
	21	✓	✓	=						

Search Notes 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

CPC - Searched*		
Symbol	Date	Examiner
CPC Classification Search (H04L63/1416 or G06F9/45558 or G06F11/1464 or G06F16/128 or H04L63/1433 or H04L63/1441 or G06F2009/45562 or G06F2009/45583 or G06F2009/45587 or G06F2009/45591 or G06F2009/45595 or G06F2201/84 or G06F2201/815 or G06F2201/86 or G06F11/1451 or G06F11/301 or G06F11/3476 or H04L63/1408 or H04L63/1425) limited with text.	02/24/2022	HS
CPC Classification Search (H04L63/1416 or G06F9/45558 or G06F11/1464 or G06F16/128 or H04L63/1433 or H04L63/1441 or G06F2009/45562 or G06F2009/45583 or G06F2009/45587 or G06F2009/45591 or G06F2009/45595 or G06F2201/84 or G06F2201/815 or G06F2201/86 or G06F11/1451 or G06F11/301 or G06F11/3476 or H04L63/1408 or H04L63/1425) limited with text update.	06/13/2022	HS

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.

/HASSAN SAADOUN/ Examiner, Art Unit 2435	
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Search Notes 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

Search Notes		
Search Notes	Date	Examiner
PE2E class limited with text search. (See Search History).	02/24/2022	HS
PE2E inventor and assignee search. (See Search History).	02/24/2022	HS
PE2E text search. (See Search History).	02/24/2022	HS
PE2E Interference Search. (See Search History).	02/24/2022	HS
NPL search. (Google Scholar and IP.com). (See Search History).	02/24/2022	HS
PE2E class limited with text search update. (See Search History).	06/13/2022	HS
PE2E inventor and assignee search update. (See Search History).	06/13/2022	HS
PE2E text search update. (See Search History).	06/13/2022	HS
PE2E Interference Search update. (See Search History).	06/13/2022	HS
NPL search update. (Google Scholar). (See Search History).	06/13/2022	HS

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H04L	63/1416, 63/1433, 63/1441, 63/1408, 63/1425.	02/24/2022	HS
G06F	9/45558, 11/1464, 16/128, 2009/45562, 2009/45583, 2009/45587, 2009/45591, 2009/45595, 2201/84, 2201/815, 2201/86, 11/1451, 11/301, 11/3476.	02/24/2022	HS
H04L	63/1416, 63/1433, 63/1441, 63/1408, 63/1425.	06/13/2022	HS
G06F	9/45558, 11/1464, 16/128, 2009/45562, 2009/45583, 2009/45587, 2009/45591, 2009/45595, 2201/84, 2201/815, 2201/86, 11/1451, 11/301, 11/3476.	06/13/2022	HS

/HASSAN SAADOUN/ Examiner, Art Unit 2435	
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Bibliographic Data

Application No: 17/330,998

Foreign Priority claimed: ☐ Yes ☒ No

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

☐ Met After Allowance

Verified and Acknowledged:

/HASSAN
SAADOUN/

Examiner's Signature

Initials

Title:

TECHNIQUES FOR SECURING VIRTUAL MACHINES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/26/2021	726	2435	15635.0003-01000
RULE			

APPLICANTS

Orca Security LTD., Tel Aviv, ISRAEL

INVENTORS

Avi SHUA, Tel Aviv, ISRAEL

CONTINUING DATA

This application is a CON of 16585967 09/27/2019

16585967 has PRO of 62797718 01/28/2019

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/21/2021

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UNITED STATES

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\$3,050

Protecting privacy in location-based services through location anonymization using cloaking algorithms based on connected components

PS Saravanan, SR Balasundaram - Wireless Personal Communications, 2018 - Springer

... of the tourist can also be **determined**. To prevent this kind of ... while defending against **snapshot location attacks** can be ... **Using** evaluation **based** on the T-Drive dataset, we **find** that CRCA ...

☆ Save Cite Cited by 4 Related articles All 3 versions Import into EndNote

Multiparameter analysis of aero-icing problems using proper orthogonal decomposition and multidimensional interpolation

M Fossati, WG Habashi - AIAA Journal, 2013 - arc.aiaa.org

... In-flight ice accretion is **determined** by the heat exchange ... Eventually, the errors at each **snapshot location** are ... the eigenfunctions ϕ_j , it is **possible** to **compute** the $N_S \times M$ coefficients α_i ...

☆ Save Cite Cited by 44 Related articles All 7 versions Import into EndNote

Real-time regional jet comprehensive aeroicing analysis via reduced-order modeling

Z Zhan, WG Habashi, M Fossati - AIAA Journal, 2016 - arc.aiaa.org

... a priori how many snapshots to **compute** and/or which ... **snapshot location**; ie, the ROM solution is obtained **based** on the ... clusters are **determined** via logistic regression, **using** a degree-4 ...

☆ Save Cite Cited by 20 Related articles All 7 versions Import into EndNote

Effective Query Management using Efficient Frameworks in Mobile Environment

AP Chendke, SS Sherekar, VM Thakare - International Journal of ..., 2015 - ijecscse.org

... such queries as efficiently as **possible** in order to minimize ... Example: To **find** motel information in current region. The ... Data broadcasting strategy relates to **determining** a method to ...

☆ Save Cite Cited by 1 Related articles All 2 versions Import into EndNote

Enforcing privacy for location based services

AS Saxena, V Goyal, D Bera - 2019 - repository.iiitd.edu.in

... **Using** this, we aim to derive an additional strategy together ... are named as **snapshot Location-based Services**; whereas ... been **established** yet again that improper **security** measures ...

☆ Save Cite Related articles All 2 versions Import into EndNote

Cataglyphis: An autonomous sample return rover

Y Gu, N Oni, K Lassak, J Strader, L Kogan... - Journal of Field ..., 2018 - Wiley Online Library

... to **determine** its heading angle.24-26The rover's pitch and roll angles are **determined based** on the gravity vector estimated **using** ... robot then visits each **snapshot location** in sequence in ...

☆ Save Cite Cited by 13 Related articles All 2 versions Import into EndNote

What's on the Horizon? An In-Depth Forensic Analysis of Android and iOS Applications

FE Salamih, MM Mirza, S Hutchinson, YH Yoon... - ..., Access, 2021 - ieeeexplore.ieee.org

... [13] recovered **potential** Discord app artifacts such as plaintext ... Furthermore, we could not **determine** whether these messages will ... Refer to Table 6 for the **Snapshot location** for ...

☆ Save Cite Related articles Import into EndNote

Windows forensic analysis

RD Pittman, D Shaver - Handbook of Digital Forensics and Investigation, 2010 - Elsevier

... for **determining** the maximum percentage of the **drive** the ... complimentary **virtual Disk** device will be 6&38b32a79&1. ... }RP###**snapshot location** can be parsed and viewed the same as ...

☆ Save Cite Cited by 9 Related articles Import into EndNote

Looking down: a model for visual route following in flying insects

J Stankiewicz, B Webb - *Bioinspiration & Biomimetics*, 2021 - iopscience.iop.org

... can navigate **using** view memories of the ground. We ... acquired near to a **snapshot location** should be classified as familiar. ... following section were **established** to evaluate these criteria. ...

☆ Save  Cite Cited by 2 Related articles All 3 versions Import into EndNote 

Replication

T Bain, B Pavliashvili, J Sack, M Benkovich... - *Beginning SQL Server* ... , 2004 - Springer

... to the distributor (or **snapshot location**). The Snapshot Agent ... Once this connection has been **established**, the Snapshot ... can **access** data **using** a connection to the **Internet** (**using** a ...

☆ Save  Cite All 2 versions Import into EndNote

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L3	0	((("Orca") near3 ("Security") near3 ("LTD"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/02/23 04:57 PM
L4	9	((("SHUA") near3 ("Avi"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 04:57 PM
L7	1206	(determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 05:03 PM
L9	11	("10412109" OR "20070266433" OR "20140137190" OR "20150052520" OR "20170011138" OR "20180255080" OR "20180293374" OR "9177145" OR "9519781" OR "9563777" OR "9798885").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/23 05:07 PM
L10	2	("10412109" OR "20070266433" OR "20140137190" OR "20150052520" OR "20170011138" OR "20180255080" OR "20180293374" OR "9177145" OR "9519781" OR "9563777" OR "9798885").pn. AND	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/23 05:08 PM

L11	7	(determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 05:14 PM
L12	2	"10944778"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 08:57 AM
L13	5	"10536471"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 08:59 AM
L14	2	"20170103212"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:00 AM
L16	11	(determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious) AND (snapshot snap?shot image copy replicat\$ clon\$) near3 (location spot place site placement area) AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:06 AM
L18	101	(determin\$ identif\$) near2 (location spot place site placement	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:11 AM

L19	57	area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 disk) "VM") I18 AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:12 AM
L21	48	I19 AND (@ad<"20190128")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:20 AM
L22	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 disk) "VM") SAME cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:23 AM
L23	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") SAME cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:24 AM
L24	65	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") AND cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:24 AM
L25	8	(determin\$ identif\$)	(US-PGPUB; USPAT;	OR	ON	ON	2022/02/24

		near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") AND cloud near2 (asset service) AND (attack threat malware malicious)	USOCR; EPO; JPO; DERWENT)				09:25 AM
L26	153	(access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:30 AM
L27	82	L26 AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:31 AM
L29	72	L27 AND (@ad<"20190128")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:31 AM
L30	0	(access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM") SAME (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:36 AM

L31	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:37 AM
L32	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order preference)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:38 AM
L33	2	"20180137032"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:50 AM
L34	2	"20160094568"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:50 AM
L35	2	"20160004449"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:51 AM
L36	4	"20130191643"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:52 AM
L37	2	"10944778"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:53 AM
L38	2	"11068353"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:54 AM
L39	1	"17330998"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/13 02:22 PM
L40	2	((("SHUA") near3 ("Avi"))).INV. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM").clm.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:23 PM
L41	2	((("Orca") near3 ("Security") near3 ("LTD"))).AS,AANM. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM").clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:23 PM
L42	41	(determin\$ identif\$) near2 (snapshot snap?shot image copy	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:24 PM

L44	2	replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious) AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc. ("10412109" OR "20070266433" OR "20140137190" OR "20150052520" OR "20170011138" OR "20180255080" OR "20180293374" OR "9177145" OR "9519781" OR "9563777" OR "9798885").pn. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/13 02:25 PM
L45	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 disk) "VM") SAME cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:25 PM
L46	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:25 PM

L47	0	machine)) "VM") SAME cloud near2 (asset service) (access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM") SAME (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:26 PM
L48	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:26 PM
L49	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order preference)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:26 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N5	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack hack\$3) near7 (priority order preference).clm. AND (H04L63/1416 OR G06F9/45558 OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:21 PM

N6	0	G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc. (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack hack\$3) near7 (priority order).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:21 PM
N7	0	 (access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site area) near3 ((virtual adj2 (disk machine)) "VM") SAME (analyz\$ inspect\$ process\$) near2	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:22 PM

N8	2	((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc. (determin\$ identif\$) near2 (location spot place site area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") SAME cloud near2 (asset service).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:22 PM
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Techniques for Securing Virtual Machines	)	Group Art Unit: 2435
	)	
Application No.: 17/330,998	)	Examiner: SAADOUN, HASSAN
	)	
Filed: 05/26/2021	)	
	)	Confirmation No.: 3062
For: Avi SHUA	)	

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

Commissioner:

RESPONSE TO FINAL OFFICE ACTION

In reply to the Final Office Action mailed on June 30, 2022, Applicant responds
the above-identified application as follows:

REMARKS

The present response is intended to be fully responsive to all points of objection and/or rejection raised by the Final Office Action mailed June 30, 2022 and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Applicant wishes to thank the Examiner for the phone call received on June 27, 2022. During the phone call, the Examiner explained that the Final Office Action would be mailed due to internal docketing requirements, and agreed that the application would be allowed as soon as this response to the Final Office Action is filed, as all objections and rejections would be withdrawn.

I. Status of the Specification

The objection to the Specification was withdrawn.

II. Status of the Claims

Claims 1-4, 6-15 and 17-21 are pending and have been allowed. Claims 5 and 16 were canceled without prejudice.

III. Statutory Double Patenting Rejection

The Examiner withdrew the statutory double patenting rejection of claims 1-21.

IV. Non-statutory Double Patenting Rejection

The Examiner rejected claims 1-4, 6-15 and 17-21 on the ground of non-statutory obviousness-type double patenting over claims 1-4, 6-15 and 17-21 of copending application No 16/585,967.

Applicant respectfully traverses the rejection, and directs the Examiner to the Terminal Disclaimer filed on June 24, 2022 and granted on June 25, 2022, over the '967

application. Accordingly, Applicant respectfully maintains that the non-statutory double patenting rejection is improper and should be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: 22 July 2022

By: /Christopher C. Johns/

Christopher C. Johns

Reg. No. 68,664

(202) 408-4000



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
17/330,998

RECEIPT DATE / TIME
07/22/2022 10:04:03 AM ET

ATTORNEY DOCKET #
15635.0003-01000

Title of Invention

TECHNIQUES FOR SECURING VIRTUAL MACHINES

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 3062

FILED BY Wanda Whittington

PATENT CENTER # 60804479

FILING DATE 05/26/2021

CUSTOMER # 22852

FIRST NAMED
INVENTOR Avi SHUA

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Christopher Johns

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
15635-0003-01000ResponsetoFinalOfficeAction-07-22-2022.pdf	3	-	19 KB
15635-0003-01000ResponsetoFinalOfficeAction-07-22-2022-A.NE.pdf	(1-1) 1	Response After Final Action	12 KB
15635-0003-01000ResponsetoFinalOfficeAction-07-22-2022-REM.pdf	(2-3) 2	Applicant Arguments/Remarks Made in an Amendment	15 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
15635-0003-01000ResponsetoFinalOfficeAction-07-22-2022.pdf	E21AB12A7F1D0139A0E35DB1FC811DFF0DC445C2DA5494F056BA584BF3F89A1ABACE1385EE80BC21CC2CC313DFAD294BE53399E50CEB233A78D200731102A360
15635-0003-01000ResponsetoFinalOfficeAction-07-22-2022-A.NE.pdf	6DBAB30B1C96A4100BC1A925F3CC9BC85EFBD32E85A7C952ED4EE96592AE5B3E850066CF181C5929B697F1FCF8B6999F9A8FE8187FB6A70591CFF622AF8661ED
15635-0003-01000ResponsetoFinalOfficeAction-07-22-2022-REM.pdf	93DAB1DB8CC0D9D3E00FA9EF85A7BBAF58A2D1B23F9C4FDCE6E62C397FE45D714293C487EA0E3BD9EF28F189A54841D0E04C22FEE088EFAC4C3B580B829B5ACD

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

National Stage of an International Application under 35 U.S.C. 371

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

New International Application Filed with the USPTO as a Receiving Office

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330,998	05/26/2021	Avi SHUA	15635.0003-01000	3062
22852 7590 06/30/2022 FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER SAADOUN, HASSAN	
			ART UNIT 2435	PAPER NUMBER
			NOTIFICATION DATE 06/30/2022	DELIVERY MODE ELECTRONIC

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

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

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

regional-desk@finnegan.com

Notice of Pre-AIA or AIA Status

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

Response to Amendment

2. The Amendment filed **06/01/2022** has been entered. Claims **1-2, 4, 11-12** have been amended. Claims **5 and 16** are canceled. Claims **1-4, 6-15 and 17-21** are pending in this application.

3. Applicant's arguments with respect to **Specification objection** have been fully considered and persuasive. The objection has been withdrawn.

Response to Argument

4. Applicant's arguments filed on **06/01/2022** with respect to **claims 1-21 Statutory Double Patenting** rejection with respect to **claims 1-21** of copending application **16/585,967** have been fully considered and persuasive. The rejection has been withdrawn.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims

are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-4, 6-15 and 17-21 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **claims 1-4, 6-15 and 17-21** of copending application No **16/585,967**.

7. Although the claims at issue are not identical, they are not patentably distinct from each other because they are both claiming a common subject matter “determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, accessing the snapshot of the virtual disk based on the determined location, analyzing

the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset and alerting detected potential cyber threats based on a determined priority.”.

Allowable Subject Matter

8. Claims **1-4, 6-15 and 17-21** would be allowable if they overcome the nonstatutory double patenting rejection, set forth in this office action.
9. The following is an examiner’s statement of reasons for identifying allowable subject matter.
10. The closest prior arts made of records are, Golan et al. (U.S Patent No. **10,944,778 B1**, referred to as **Golan**), Derbeko et al. (U.S Patent No. **10,536,471 B1**, referred to as **Derbeko**) and Deng et al. (U.S Pub No. **2017/0103212 A1**, referred to as **Deng**).

Golan discloses a method and system for implementing risk-based cyber security. Specifically, the disclosed method and system entail evaluating risk as a decision threshold for conducting cyber security assessments of system images within cloud computing environments. Further, the disclosed method and system pivot on intelligence pertaining to the latest cyber threats and/or vulnerabilities found worldwide.

Derbeko discloses a system and a method of detecting malware in a virtual machine (VM), the method comprising periodically creating snapshots of the VM, analyzing each of the snapshots in comparison to one or more previous snapshots to determine whether anomalies exist, and based on a threshold amount of anomalies detected, scanning the VM to determine whether malware is detected.

Deng discloses determining which snapshot deltas tend to occur in: (i) healthy virtual machines (VMs) that have been subject to an attack yet remained healthy, and/or (ii) unhealthy VMs that have apparently been adversely affected by an attack. Snapshot deltas that occur in at least some (or more preferably all) of the healthy VM subset provide information about software changes (for example, updates, configuration changes) that may be helpful. Snapshot deltas that occur in at least some (or more preferably all) of the unhealthy VM subsets provide information about software changes (for example, updates, configuration changes) that may be unhelpful.

11. However, regarding claims **1 and 11**, the prior art of **Golan, Derbeko** and **Deng** when taken in the context of the claim as a whole do not disclose nor suggest, determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment; taking a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located; accessing the snapshot of the virtual disk based on the determined location; analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and alerting detected potential cyber threats based on a determined priority.

12. Regarding claim **12**, the prior art of **Golan, Derbeko** and **Deng** when taken in the context of the claim as a whole do not disclose nor suggest, “determine a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment; take a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located; access the snapshot of the virtual disk based on the determined location; analyze the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and alert detected potential cyber threats based on a determined priority.”.

13. **Claims 2-4 and 6-10** depend on **claim 1** and **claims 13-15 and 17-21** depend on **claim 12**, and are of consequence allowed.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HASSAN SAADOUN whose telephone number is (571)272-8408. The examiner can normally be reached Mon-Fri 9:00-5:00.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hirl can be reached on 571-272-3685. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For

additional questions, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free). If you would like assistance from a USPTO Customer Service

Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HASSAN SAADOUN/
Examiner, Art Unit 2435

/JOSEPH P HIRL/
Supervisory Patent Examiner, Art Unit 2435

Notice of References Cited	Application/Control No. 17/330,998		Applicant(s)/Patent Under Reexamination SHUA, Avi	
	Examiner HASSAN SAADOUN		Art Unit 2435	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-10944778-B1	03-2021	Golan; Oron	H04L63/1491	1/1
*	B	US-10536471-B1	01-2020	Derbeko; Philip	G06F21/53	1/1
*	C	US-20170103212-A1	04-2017	Deng; Yu	G06F3/0619	1/1
*	D	US-11068353-B1	07-2021	Ved; Amber	G06F9/45558	1/1
*	E	US-20160094568-A1	03-2016	Balasubramanian; Swaminathan	G06F9/45558	726/23
*	F	US-20160004449-A1	01-2016	LAKSHMAN; Avinash	G06F3/0604	711/162
*	G	US-20130191643-A1	07-2013	Song; Zhexuan	H04L9/3265	713/176
	H					
	I					
	J					
	K					
	L					
	M					

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.

Search Notes 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

CPC - Searched*		
Symbol	Date	Examiner
CPC Classification Search (H04L63/1416 or G06F9/45558 or G06F11/1464 or G06F16/128 or H04L63/1433 or H04L63/1441 or G06F2009/45562 or G06F2009/45583 or G06F2009/45587 or G06F2009/45591 or G06F2009/45595 or G06F2201/84 or G06F2201/815 or G06F2201/86 or G06F11/1451 or G06F11/301 or G06F11/3476 or H04L63/1408 or H04L63/1425) limited with text.	02/24/2022	HS
CPC Classification Search (H04L63/1416 or G06F9/45558 or G06F11/1464 or G06F16/128 or H04L63/1433 or H04L63/1441 or G06F2009/45562 or G06F2009/45583 or G06F2009/45587 or G06F2009/45591 or G06F2009/45595 or G06F2201/84 or G06F2201/815 or G06F2201/86 or G06F11/1451 or G06F11/301 or G06F11/3476 or H04L63/1408 or H04L63/1425) limited with text update.	06/13/2022	HS

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.

/HASSAN SAADOUN/ Examiner, Art Unit 2435	
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Search Notes 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

Search Notes		
Search Notes	Date	Examiner
PE2E class limited with text search. (See Search History).	02/24/2022	HS
PE2E inventor and assignee search. (See Search History).	02/24/2022	HS
PE2E text search. (See Search History).	02/24/2022	HS
PE2E Interference Search. (See Search History).	02/24/2022	HS
NPL search. (Google Scholar and IP.com). (See Search History).	02/24/2022	HS
PE2E class limited with text search update. (See Search History).	06/13/2022	HS
PE2E inventor and assignee search update. (See Search History).	06/13/2022	HS
PE2E text search update. (See Search History).	06/13/2022	HS
PE2E Interference Search update. (See Search History).	06/13/2022	HS
NPL search update. (Google Scholar). (See Search History).	06/13/2022	HS

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H04L	63/1416, 63/1433, 63/1441, 63/1408, 63/1425.	02/24/2022	HS
G06F	9/45558, 11/1464, 16/128, 2009/45562, 2009/45583, 2009/45587, 2009/45591, 2009/45595, 2201/84, 2201/815, 2201/86, 11/1451, 11/301, 11/3476.	02/24/2022	HS
H04L	63/1416, 63/1433, 63/1441, 63/1408, 63/1425.	06/13/2022	HS
G06F	9/45558, 11/1464, 16/128, 2009/45562, 2009/45583, 2009/45587, 2009/45591, 2009/45595, 2201/84, 2201/815, 2201/86, 11/1451, 11/301, 11/3476	06/13/2022	HS

/HASSAN SAADOUN/ Examiner, Art Unit 2435	
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<i>Index of Claims</i> 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	02/24/2022	06/23/2022							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
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	19	✓	✓							
	20	✓	✓							
	21	✓	✓							

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L3	0	((("Orca") near3 ("Security") near3 ("LTD"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/02/23 04:57 PM
L4	9	((("SHUA") near3 ("Avi"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 04:57 PM
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L13	5	"10536471"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 08:59 AM
L14	2	"20170103212"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:00 AM
L16	11	(determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious) AND (snapshot snap?shot image copy replicat\$ clon\$) near3 (location spot place site placement area) AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:06 AM
L18	101	(determin\$ identif\$) near2 (location spot place site placement	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:11 AM

L19	57	area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 disk) "VM") I18 AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:12 AM
L21	48	I19 AND (@ad<"20190128")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:20 AM
L22	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 disk) "VM") SAME cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:23 AM
L23	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") SAME cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:24 AM
L24	65	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") AND cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:24 AM
L25	8	(determin\$ identif\$)	(US-PGPUB; USPAT;	OR	ON	ON	2022/02/24

		near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") AND cloud near2 (asset service) AND (attack threat malware malicious)	USOCR; EPO; JPO; DERWENT)				09:25 AM
L26	153	(access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:30 AM
L27	82	L26 AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:31 AM
L29	72	L27 AND (@ad<"20190128")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:31 AM
L30	0	(access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM") SAME (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:36 AM

L31	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:37 AM
L32	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order preference)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:38 AM
L33	2	"20180137032"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:50 AM
L34	2	"20160094568"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:50 AM
L35	2	"20160004449"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:51 AM
L36	4	"20130191643"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:52 AM
L37	2	"10944778"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:53 AM
L38	2	"11068353"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:54 AM
L39	1	"17330998"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/13 02:22 PM
L40	2	((("SHUA") near3 ("Avi"))).INV. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM").clm.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:23 PM
L41	2	((("Orca") near3 ("Security") near3 ("LTD"))).AS,AANM. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM").clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:23 PM
L42	41	(determin\$ identif\$) near2 (snapshot snap?shot image copy	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:24 PM

L44	2	replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious) AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc. ("10412109" OR "20070266433" OR "20140137190" OR "20150052520" OR "20170011138" OR "20180255080" OR "20180293374" OR "9177145" OR "9519781" OR "9563777" OR "9798885").pn. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/13 02:25 PM
L45	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 disk) "VM") SAME cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:25 PM
L46	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:25 PM

L47	0	machine)) "VM") SAME cloud near2 (asset service) (access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM") SAME (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:26 PM
L48	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:26 PM
L49	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order preference)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/13 02:26 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N5	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack hack\$3) near7 (priority order preference).clm. AND (H04L63/1416 OR G06F9/45558 OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:21 PM

N6	0	G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc. (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack hack\$3) near7 (priority order).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:21 PM
N7	0	 (access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site area) near3 ((virtual adj2 (disk machine)) "VM") SAME (analyz\$ inspect\$ process\$) near2	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:22 PM

N8	2	((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc. (determin\$ identif\$) near2 (location spot place site area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") SAME cloud near2 (asset service).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/06/13 02:22 PM
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Bibliographic Data

Application No: 17/330,998

Foreign Priority claimed: ☐ Yes ☒ No

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

☐ Met After Allowance

Verified and Acknowledged:

/HASSAN
SAADOUN/

Examiner's Signature

Initials

Title:

TECHNIQUES FOR SECURING VIRTUAL MACHINES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/26/2021	726	2435	15635.0003-01000
RULE			

APPLICANTS

Orca Security LTD., Tel Aviv, ISRAEL

INVENTORS

Avi SHUA, Tel Aviv, ISRAEL

CONTINUING DATA

This application is a CON of 16585967 09/27/2019

16585967 has PRO of 62797718 01/28/2019

FOREIGN APPLICATIONS

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07/21/2021

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Protecting privacy in location-based services through location anonymization using cloaking algorithms based on connected components

PS Saravanan, SR Balasundaram - Wireless Personal Communications, 2018 - Springer

... of the tourist can also be **determined**. To prevent this kind of ... while defending against **snapshot location attacks** can be ... **Using** evaluation **based** on the T-Drive dataset, we **find** that CRCA ...

☆ Save Cite Cited by 4 Related articles All 3 versions Import into EndNote

Multiparameter analysis of aero-icing problems using proper orthogonal decomposition and multidimensional interpolation

M Fossati, WG Habashi - AIAA Journal, 2013 - arc.aiaa.org

... In-flight ice accretion is **determined** by the heat exchange ... Eventually, the errors at each **snapshot location** are ... the eigenfunctions ϕ_j , it is **possible** to **compute** the $N_S \times M$ coefficients α_i ...

☆ Save Cite Cited by 44 Related articles All 7 versions Import into EndNote

Real-time regional jet comprehensive aeroicing analysis via reduced-order modeling

Z Zhan, WG Habashi, M Fossati - AIAA Journal, 2016 - arc.aiaa.org

... a priori how many snapshots to **compute** and/or which ... **snapshot location**; ie, the ROM solution is obtained **based** on the ... clusters are **determined** via logistic regression, **using** a degree-4 ...

☆ Save Cite Cited by 20 Related articles All 7 versions Import into EndNote

Effective Query Management using Efficient Frameworks in Mobile Environment

AP Chendke, SS Sherekar, VM Thakare - International Journal of ..., 2015 - ijecscse.org

... such queries as efficiently as **possible** in order to minimize ... Example: To **find** motel information in current region. The ... Data broadcasting strategy relates to **determining** a method to ...

☆ Save Cite Cited by 1 Related articles All 2 versions Import into EndNote

Enforcing privacy for location based services

AS Saxena, V Goyal, D Bera - 2019 - repository.iiitd.edu.in

... **Using** this, we aim to derive an additional strategy together ... are named as **snapshot Location-based Services**; whereas ... been **established** yet again that improper **security** measures ...

☆ Save Cite Related articles All 2 versions Import into EndNote

Cataglyphis: An autonomous sample return rover

Y Gu, N Oni, K Lassak, J Strader, L Kogan... - Journal of Field ..., 2018 - Wiley Online Library

... to **determine** its heading angle.24-26The rover's pitch and roll angles are **determined based** on the gravity vector estimated **using** ... robot then visits each **snapshot location** in sequence in ...

☆ Save Cite Cited by 13 Related articles All 2 versions Import into EndNote

What's on the Horizon? An In-Depth Forensic Analysis of Android and iOS Applications

FE Salamih, MM Mirza, S Hutchinson, YH Yoon... - ..., Access, 2021 - ieeeexplore.ieee.org

... [13] recovered **potential** Discord app artifacts such as plaintext ... Furthermore, we could not **determine** whether these messages will ... Refer to Table 6 for the **Snapshot location** for ...

☆ Save Cite Related articles Import into EndNote

Windows forensic analysis

RD Pittman, D Shaver - Handbook of Digital Forensics and Investigation, 2010 - Elsevier

... for **determining** the maximum percentage of the **drive** the ... complimentary **virtual Disk** device will be 6&38b32a79&1. ... }RP###**snapshot location** can be parsed and viewed the same as ...

☆ Save Cite Cited by 9 Related articles Import into EndNote

Looking down: a model for visual route following in flying insects

J Stankiewicz, B Webb - *Bioinspiration & Biomimetics*, 2021 - iopscience.iop.org

... can navigate **using** view memories of the ground. We ... acquired near to a **snapshot location** should be classified as familiar. ... following section were **established** to evaluate these criteria. ...

☆ Save  Cite Cited by 2 Related articles All 3 versions Import into EndNote 

Replication

T Bain, B Pavliashvili, J Sack, M Benkovich... - *Beginning SQL Server ...*, 2004 - Springer

... to the distributor (or **snapshot location**). The Snapshot Agent ... Once this connection has been **established**, the Snapshot ... can **access** data **using** a connection to the **Internet (using a ...**

☆ Save  Cite All 2 versions Import into EndNote

<i>Application Number</i> * 17/330,998 *	Application/Control No. 17/330,998	Applicant(s)/Patent under Reexamination SHUA, Avi	
	Examiner SAADOUN, HASSAN	Art Unit 2435	
Document Code - DISQ		Internal Document - DO NOT MAIL	

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed: <u>24 June 2022</u>	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
/JEAN PROCTOR/ Technology Center: <u>OPLC</u> Telephone: <u>(571)272-1040</u> _____

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REJECTION OVER A PENDING "REFERENCE" APPLICATION**

Docket Number (Optional)

15635.0003-01000

In re Application of: Avi SHUA

Application No.: 17/330,998

Filed: 05-26-2021

For: TECHNIQUES FOR SECURING VIRTUAL MACHINES

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2. ☒ The undersigned is an attorney or agent of record. Reg. No. 33,751

/Gerson S. Panitch/

Signature

24 June 2022

Date

Gerson Panitch

Typed or printed name

Attorney of record

Title

202-408-4080

Telephone Number

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Electronic Patent Application Fee Transmittal				
Application Number:		17330998		
Filing Date:		26-May-2021		
Title of Invention:		TECHNIQUES FOR SECURING VIRTUAL MACHINES		
First Named Inventor/Applicant Name:		Avi SHUA		
Filer:		Christopher Charles Johns/Elizabeth Samuels		
Attorney Docket Number:		15635.0003-01000		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
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STATUTORY OR TERMINAL DISCLAIMER	1814	1	170	170
Total in USD (\$)				170

Electronic Acknowledgement Receipt

EFS ID:	46037848
Application Number:	17330998
International Application Number:	
Confirmation Number:	3062
Title of Invention:	TECHNIQUES FOR SECURING VIRTUAL MACHINES
First Named Inventor/Applicant Name:	Avi SHUA
Customer Number:	22852
Filer:	Christopher Charles Johns/Elizabeth Samuels
Filer Authorized By:	Christopher Charles Johns
Attorney Docket Number:	15635.0003-01000
Receipt Date:	24-JUN-2022
Filing Date:	26-MAY-2021
Time Stamp:	12:16:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 170
RAM confirmation Number	E20226NC18104312
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Authorized User	

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File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer Filed	15635_0003_01000_TD.pdf	192288	no	2
			f166070c4f4d175bf87de3cc4585f64e2c53fb27		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38208	no	2
			2a083aa91c0b11e1fe49863dd3bfe1cf873f60eb		
Warnings:					
Information:					
Total Files Size (in bytes):			230496		
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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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 17/330,998		Filing Date 05/26/2021		☐ To be Mailed			
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO											
APPLICATION AS FILED - PART I											
		(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A					
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A					
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		x \$50 =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		x \$240 =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))											
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL					
APPLICATION AS AMENDED - PART II											
		(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	06/01/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0	x \$50 =		0			
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	x \$240 =		0			
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
								TOTAL ADD'L FEE		0	
		(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =					
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =					
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
								TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.								HSLIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".								/TRACIE V HARGROVE/			
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".											
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.											

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

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
17/330,998

RECEIPT DATE / TIME
06/01/2022 03:36:24 PM ET

ATTORNEY DOCKET #
15635.0003-01000

Title of Invention

TECHNIQUES FOR SECURING VIRTUAL MACHINES

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 3062

FILED BY Wanda Whittington

PATENT CENTER # 60696504

FILING DATE 05/26/2021

CUSTOMER # 22852

FIRST NAMED
INVENTOR Avi SHUA

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Christopher Johns

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
15635-0003-0100AMENDMENT-as-filed.pdf	10	Amendment/Request for Reconsideration-After Non-Final Rejection	47 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
15635-0003-0100AMENDMENT-as-filed.pdf	CB0844CE9672FD719416695C967BD6E358E163FBE44FFBA99 4835F06A20DCE54BD0238F3C815643EF6D6151B1C214A5DC 65060B8FF702AAB153409854A79D63

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New Applications Under 35 U.S.C. 111

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

National Stage of an International Application under 35 U.S.C. 371

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

New International Application Filed with the USPTO as a Receiving Office

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

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Techniques for Securing Virtual Machines	)	Group Art Unit: 2435
	)	
Application No.: 17/330,998	)	Examiner: SAADOUN, HASSAN
	)	
Filed: 05/26/2021	)	
	)	Confirmation No.: 3062
For: Avi SHUA	)	

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

Commissioner:

AMENDMENT

In reply to the non-Final Office Action mailed on March 4, 2022, Applicant responds the above-identified application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims begin on page 3 of this paper.

Remarks follow the amendment sections of this paper.

AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0001] as follows:

Cross References to Related Applications

[001] This application is a continuation of U.S. Patent Application No. 16/585,967, filed September 27, 2019, which claims the benefit of U.S. Provisional Application No. 62/797,718 filed on January 28, 2019, the contents of each of which are hereby incorporated by reference in their entireties.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the Application:

1. (Currently Amended) A method for securing virtual cloud assets in a cloud computing environment against cyber threats, comprising:
 - determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment;
 - taking a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located;
 - accessing the snapshot of the virtual disk based on the determined location;
 - analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and
 - alerting detected potential cyber threats based on a determined priority.
2. (Currently Amended) The method of claim 1, further comprising:
 - prioritizing each of the detected [[of]] potential cyber threats based on their respective risk to the protected virtual cloud asset; and
 - mitigating a potential cyber threat posing a risk to the protected virtual cloud asset.
3. (Original) The method of claim 1, wherein determining the location of the snapshot of at least one virtual disk further comprises:
 - determining a virtual disk allocated to the protected virtual cloud asset.
4. (Currently Amended) The method of claim 2, further comprising:
 - querying a cloud management console of the cloud computing environment platform to determine the location of the snapshot and the location of the virtual disk.
5. (Canceled).

6. (Original) The method of claim 1, wherein analyzing the snapshot of the protected virtual machine further comprises:
 - parsing a copy of the snapshot; and
 - scanning the parsed copy to detect the potential cyber threats, wherein the potential cyber threats include known and unknow vulnerabilities, and wherein the detection is based on a type of vulnerability.
7. (Original) The method of claim 6, wherein scanning the parsed copy further comprises any one of:
 - checking configuration files of applications and operating system installed in the protected virtual machine;
 - verifying access times to files by the operating system installed in the operating machine;
 - analyzing system logs to deduce what applications and modules executed in the protected virtual cloud asset; and
 - analyzing machine memory stored in the snapshot to deduce what applications and modules executed in the protected virtual cloud asset.
8. (Original) The method of claim 6, further comprising:
 - instantiating a copy of the protected virtual machine from the snapshot; and
 - monitoring all activity performed by the instance of the protected virtual cloud asset.
9. (Original) The method of claim 6, wherein scanning the parsed copy further comprises any one of:
 - reading process identification number (PIO) files; and
 - checking if the at least the PIO files access times match against process descriptors.
10. (Original) The method of claim 1, wherein the protected virtual cloud asset includes any one of: a virtual machine, a software container, a micro-service.

11. (Currently Amended) A non-transitory computer readable medium having stored thereon instructions for causing a processing circuitry to execute a process, the process comprising:

determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment;

taking a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located;

accessing the snapshot of the virtual disk based on the determined location; analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and

alerting detected potential cyber threats based on a determined priority.

12. (Currently Amended) A system for securing virtual cloud assets in a cloud computing environment against cyber threats, comprising:

a processing circuitry; and

a memory, the memory containing instructions that, when executed by the processing circuitry, configure the system to:

determine a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment;

take a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located;

access the snapshot of the virtual disk based on the determined location; analyze the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and

alert detected potential cyber threats based on a determined priority.

13. (Original) The system of claim 12, wherein the system is further configured to:

prioritize each detected of potential cyber threats based on their respective risk to the protected virtual cloud asset; and

mitigate a potential cyber threat posing a risk to the protected virtual cloud asset.

14. (Original) The system of claim 12, wherein determining the location of the snapshot of at least one virtual disk further comprises:

determining a virtual disk allocated to the protected virtual cloud asset.

15. (Original) The system of claim 13, wherein the system is further configured to:

query a cloud management console of the cloud computing platform to determine the location of the snapshot and the location of the virtual disk.

16. (Canceled) .

17. (Original) The system of claim 12, wherein analyzing the snapshot of the protected virtual machine further comprises:

parsing a copy of the snapshot; and

scanning the parsed copy to detect the potential cyber threats, wherein the potential cyber threats include known and unknow vulnerabilities, and wherein the detection is based on a type of vulnerability.

18. (Original) The system of claim 17, wherein scanning the parsed copy further comprises any one of:

checking configuration files of applications and operating system installed in the protected virtual machine;

verifying access times to files by the operating system installed in the operating machine;

analyzing system logs to deduce what applications and modules executed in the protected virtual cloud asset; and

analyzing machine memory stored in the snapshot to deduce what applications and modules executed in the protected virtual cloud asset.

19. (Original) The system of claim 17, wherein the system is further configured to:

instantiate a copy of the protected virtual machine from the snapshot; and
monitor all activity performed by the instance of the protected virtual cloud asset.

20. (Original) The system of claim 17, wherein scanning the parsed copy further comprises any one of:
 - reading process identification number (PIO) files; and
 - checking if the at least the PIO files access times match against process descriptors.
21. (Original) The system of claim 12, wherein the protected virtual cloud asset includes any one of: a virtual machine, a software container, a micro-service.

REMARKS

The present response is intended to be fully responsive to all points of objection and/or rejection raised by the non-Final Office Action mailed Mar 4, 2022, and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

I. Status of the Specification

The Specification was objected to for not reciting the application priority benefits from parent application No. 16/585,967 (referred to hereinafter as the '967 application). Applicant amended the Specification to recite the priority claim, which is now believed to overcome the objection.

II. Status of the Claims

Claims 1, 11, and 12 are amended to recite the limitations of claims 5, and 16, which are canceled without prejudice or disclaimer of the subject matter thereof.

Claims 2 and 4 are amended for clarity. Applicant respectfully asserts that no new subject matter is added.

Claims 1-21 are provisionally rejected under the doctrine of statutory double patenting over claims 1-21 of co-pending '967 application.

Applicant respectfully traverses the rejections in view of the following remarks.

III. Statutory Double Patenting Rejection

The Examiner provisionally rejected claims 1-21 on the grounds of double patenting with respect to claims 1-21 of the '967 application.

Claim 1 of the instant Application is amended to include the subject matter of cancelled claim 5, and now recites, *inter alia*, “*taking a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located.*” Claim 1 of the co-pending ‘967 application lacks this element. Furthermore, claim 5 and claim 16, reciting the subject of claim 5, in the ‘967 application are canceled without prejudice.. Accordingly, claim 1 of the instant Application differs from claim 1 of the ‘967 application, at least as to “*taking a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located*”.

Claim 1 of the instant application (and its dependent claims) therefore overcome the statutory double patenting rejection with respect to the ‘967 application. Claims 11 and 12 of the instant application (and their dependent claims) are similarly amended to recite the subject matter of claim 1 in computer readable medium and system form, respectively, and similarly overcome the statutory double patenting rejection with respect to the ‘967 application.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: 1 June 2022

By: /Christopher C. Johns/
Christopher C. Johns
Reg. No. 68,664
(202) 408-4000



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330,998	05/26/2021	Avi SHUA	15635.0003-01000	3062
22852	7590	03/04/2022		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER SAADOUN, HASSAN	
			ART UNIT	PAPER NUMBER
			2435	
			NOTIFICATION DATE	DELIVERY MODE
			03/04/2022	ELECTRONIC

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

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

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

regional-desk@finnegan.com

DETAILED ACTION

1. This office action is in response to the application filed on **05/26/2021**. **Claims 1-21** are pending and are examined.

Priority

2. Applicant's benefit claim is hereby acknowledged of the provisional application No. **62/797,718** filed on **January 28, 2019**, which papers have been placed on record in the file.

Specification Objection

3. The specification is objected to because it does not recite the application priority benefits from parent application No. **16/585,967**.

Statutory Double Patenting

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process... may obtain a patent therefor..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the claims that are directed to the same invention so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. **Claims 1-21** are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of **claims 1-21** of copending Application No. US **16/585,697**.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HASSAN SAADOUN whose telephone number is (571)272-8408. The examiner can normally be reached Mon-Fri 9:00-5:00.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hirl can be reached on 571-272-3685. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and

<https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HASSAN SAADOUN/
Examiner, Art Unit 2435

/JOSEPH P HIRL/
Supervisory Patent Examiner, Art Unit 2435

Notice of References Cited	Application/Control No. 17/330,998		Applicant(s)/Patent Under Reexamination SHUA, Avi	
	Examiner HASSAN SAADOUN		Art Unit 2435	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-10944778-B1	03-2021	Golan; Oron	H04L63/1491	1/1
*	B	US-10536471-B1	01-2020	Derbeko; Philip	G06F21/53	1/1
*	C	US-20170103212-A1	04-2017	Deng; Yu	G06F3/0619	1/1
*	D	US-11068353-B1	07-2021	Ved; Amber	G06F9/45558	1/1
*	E	US-20160094568-A1	03-2016	Balasubramanian; Swaminathan	G06F9/45558	726/23
*	F	US-20160004449-A1	01-2016	LAKSHMAN; Avinash	G06F3/0604	711/162
*	G	US-20130191643-A1	07-2013	Song; Zhexuan	H04L9/3265	713/176
*	H	US-20180137032-A1	05-2018	Tannous; Samuel Joseph	G06F11/3664	1/1
	I					
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	N					
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i> 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	02/24/2022								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
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	17	✓								
	18	✓								
	19	✓								
	20	✓								
	21	✓								

Search Notes 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

CPC - Searched*		
Symbol	Date	Examiner
CPC Classification Search (H04L63/1416 or G06F9/45558 or G06F11/1464 or G06F16/128 or H04L63/1433 or H04L63/1441 or G06F2009/45562 or G06F2009/45583 or G06F2009/45587 or G06F2009/45591 or G06F2009/45595 or G06F2201/84 or G06F2201/815 or G06F2201/86 or G06F11/1451 or G06F11/301 or G06F11/3476 or H04L63/1408 or H04L63/1425) limited with text.	02/24/2022	HS

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 class limited with text search. (See Search History).	02/24/2022	HS
PE2E inventor and assignee search. (See Search History).	02/24/2022	HS
PE2E text search. (See Search History).	02/24/2022	HS
PE2E Interference Search. (See Search History).	02/24/2022	HS
NPL search. (Google Scholar and IP.com). (See Search History).	02/24/2022	HS

/HASSAN SAADOUN/ Examiner, Art Unit 2435	
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<i>Search Notes</i> 	Application/Control No. 17/330,998	Applicant(s)/Patent Under Reexamination SHUA, Avi
	Examiner HASSAN SAADOUN	Art Unit 2435

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H04L	63/1416, 63/1433, 63/1441, 63/1408, 63/1425.	02/24/2022	HS
G06F	9/45558, 11/1464, 16/128, 2009/45562, 2009/45583, 2009/45587, 2009/45591, 2009/45595, 2201/84, 2201/815, 2201/86, 11/1451, 11/301, 11/3476.	02/24/2022	HS

/HASSAN SAADOUN/ Examiner, Art Unit 2435	
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PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L2	1	"17330998"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/23 04:55 PM
L3	0	((("Orca") near3 ("Security") near3 ("LTD"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/02/23 04:57 PM
L4	9	((("SHUA") near3 ("Avi"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 04:57 PM
L5	2	((("SHUA") near3 ("Avi"))).INV. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM").clm.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 05:00 PM
L6	0	((("Orca") near3 ("Security") near3 ("LTD"))).AS,AANM. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM").clm.	(USPAT)	OR	ON	ON	2022/02/23 05:02 PM
L7	1206	(determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 05:03 PM
L8	41	(determin\$ identif\$) near2 (snapshot snap?shot image copy	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 05:05 PM

		replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious) AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.					
L9	11	("10412109" OR "20070266433" OR "20140137190" OR "20150052520" OR "20170011138" OR "20180255080" OR "20180293374" OR "9177145" OR "9519781" OR "9563777" OR "9798885").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/23 05:07 PM
L10	2	("10412109" OR "20070266433" OR "20140137190" OR "20150052520" OR "20170011138" OR "20180255080" OR "20180293374" OR "9177145" OR "9519781" OR "9563777" OR "9798885").pn. AND (determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious)	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/23 05:08 PM
L11	7	(determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") near5	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/23 05:14 PM

L12	2	(location spot place site placement area) SAME (threat attack malware malicious) "10944778"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 08:57 AM
L13	5	"10536471"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 08:59 AM
L14	2	"20170103212"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:00 AM
L16	11	(determin\$ identif\$) near2 (snapshot snap?shot image copy replicat\$ clon\$) near3 (virtual "VM") SAME (threat attack malware malicious) AND (snapshot snap?shot image copy replicat\$ clon\$) near3 (location spot place site placement area) AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:06 AM
L18	101	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 disk) "VM")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:11 AM
L19	57	I18 AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:12 AM

L21	48	G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc. I19 AND (@ad<"20190128")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:20 AM
L22	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 disk "VM") SAME cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:23 AM
L23	6	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") SAME cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:24 AM
L24	65	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") AND cloud near2 (asset service)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:24 AM
L25	8	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") AND cloud near2 (asset service) AND (attack threat malware malicious)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:25 AM
L26	153	(access\$ obtain\$	(US-PGPUB; USPAT;	OR	ON	ON	2022/02/24

		retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM")	USOCR; EPO; JPO; DERWENT)				09:30 AM
L27	82	L26 AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:31 AM
L29	72	L27 AND (@ad<"20190128")	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:31 AM
L30	0	(access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM") SAME (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:36 AM
L31	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/24 09:37 AM
L32	0	(analyz\$ inspect\$ process\$) near2	(US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	ON	2022/02/24 09:38 AM

		((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order preference)	DERWENT)				
L33	2	"20180137032"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:50 AM
L34	2	"20160094568"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:50 AM
L35	2	"20160004449"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:51 AM
L36	4	"20130191643"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:52 AM
L37	2	"10944778"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:53 AM
L38	2	"11068353"	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:54 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	2	(determin\$ identif\$) near2 (location spot place site placement area) near5(snapshot snap?shot image copy replicat\$ clon\$) near5 ((virtual adj2 (disk machine)) "VM") SAME cloud near2 (asset service).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:41 AM

N2	0	(access\$ obtain\$ retriev\$) near2 (snapshot image copy replicat\$ clon\$ backup) near5 (location spot place site placement area) near3 ((virtual adj2 (disk machine)) "VM") SAME (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:42 AM
N3	0	(analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:42 AM

N4	0	G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc. (analyz\$ inspect\$ process\$) near2 ((virtual adj2 (disk machine)) "VM") near7 (threat malware malicious attack) SAME (alert\$ notif\$ warn\$) near3 (threat malware malicious attack) near7 (priority order preference).clm. AND (H04L63/1416 OR G06F9/45558 OR G06F11/1464 OR G06F16/128 OR H04L63/1433 OR H04L63/1441 OR G06F2009/45562 OR G06F2009/45583 OR G06F2009/45587 OR G06F2009/45591 OR G06F2009/45595 OR G06F2201/84 OR G06F2201/815 OR G06F2201/86 OR G06F11/1451 OR G06F11/301 OR G06F11/3476 OR H04L63/1408 OR H04L63/1425).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/24 09:42 AM
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Bibliographic Data

Application No: 17/330,998

Foreign Priority claimed: ☐ Yes ☒ No

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

☐ Met After Allowance

Verified and Acknowledged:

/HASSAN
SAADOUN/

Examiner's Signature

Initials

Title:

TECHNIQUES FOR SECURING VIRTUAL MACHINES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/26/2021	726	2435	15635.0003-01000
RULE			

APPLICANTS

Orca Security LTD., Tel Aviv, ISRAEL

INVENTORS

Avi SHUA, Tel Aviv, ISRAEL

CONTINUING DATA

This application is a CON of 16585967 09/27/2019

16585967 has PRO of 62797718 01/28/2019

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Security challenges and countermeasures for trusted virtualized computing environments

Today, virtualization technology is ubiquitously woven into nearly every technical field and conversation, taking place in the world of Information Technology (IT), because it can provide various benefits in terms of cost effectiveness, availability, hardware utilization, resource protection, remote .

IEEE Xplore : IEEE Conferences : 2012-08-01 : 4 : World Congress on Internet Security (WorldCIS-2012) (Page(s): 117-122)

Security intelligence for cloud management infrastructures

In this paper, we address the problem of protecting cloud infrastructures and customer workloads via smart auditing and logging, satisfying regulatory and compliance requirements. We observe that traditional approaches of logging and auditing events in cloud-scale infrastructures will not be...

IEEE Xplore : IBM Periodicals : 2016-07-01 : 4 : IBM Journal of Research and Development

Get Your Head Out of the Clouds: The Illusion of Confidentiality & Privacy

The cloud has been leveraged for many applications across different industries. Despite its popularity, the cloud technologies are still immature. The security implications of cloud computing also dominate the research space. Many confidentiality-and integrity-based (C-I) security controls...

IEEE Xplore : IEEE Conferences : 2018-11-01 : 4 : 2018 IEEE 8th International Symposium on Cloud and Service Computing (SC2) (Page(s): 57-66)

Closing the loop: Network and in-host monitoring tandem for comprehensive cloud security visibility

Cloud computing has not only become attractive for organizations and end-users but also for attackers that use cloud environments to exploit the offered economies of scale—a cloud environment consists of a large set of systems with an excellent network connectivity setup and similar configurations....

IEEE Xplore : IBM Periodicals : 2016-07-01 : 4 : IBM Journal of Research and Development

Hierarchical secure virtualization model for cloud

Cloud services are providing on-demand resources via virtualization technologies. This will make cloud computing a potential target for cyber attacks. Most proposed security models for virtualization are working above virtualization on host OS. Almost all proposed cloud security models suffers from...

IEEE Xplore : IEEE Conferences : 2012-08-01 : 4 : Proceedings Title: 2012 International Conference on Cyber Security, Cyber Warfare and Digital Forensics (CyberSec) (Page(s): 219-224)

Enabling secure multitenancy in cloud computing: Challenges and approaches

Cloud computing provides a multitenant feature that enables an IT asset to host multiple tenants, improving its utilization rate. The feature provides economic benefits to both users and service providers since it reduces the management cost and thus lowers the subscription price. Many users are,...

IEEE Xplore : IEEE Conferences : 2012-04-01 : 4 : 2012 2nd Baltic Congress on Future Internet Communications (Page(s): 72-79)

Relevance

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Publication Date

2009

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Paxos made live: an engineering perspective

TD Chandra, R Griesemer, J Redstone - ... of the twenty-sixth annual ACM ..., 2007 - dl.acm.org

... a fault-tolerant database using the Paxos consensus algorithm. ... In this case, the read operation at the master runs the risk of ... application to pass **snapshot location** information between ...

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Gaps and challenges for addressing security threats in urban environments

N Bakalos, AB ATH, J Hellriegel, NP SPH... - 2015 - project.cityrisks.eu

... alerting and response, augmented reality, and risks ... crime, crime analytics using information from the social media... Edge signals built into your devices to determine its location. ...

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Cataglyphis: An autonomous sample return rover

Y Gu, N Ohi, K Lassak, J Strader, L Kogan... - Journal of Field ..., 2018 - Wiley Online Library

... robot then visits each **snapshot location** in sequence in order to ... search, provide Cataglyphis opportunities to perform gyro ... Therefore, the robot control alerts the navigation system when ...

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What's on the Horizon? An In-Depth Forensic Analysis of Android and iOS Applications

FE Salamh, MM Mirza, S Hutchinson, YH Yoon... - ... Access, 2021 - IEEEExplore.IEEE.org

... might pose a certain level of security risks to the user's privacy. ... Furthermore, we could not determine whether these ... was stored in a Java Script Object Notification (JSON) file bprefs....

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Enforcing privacy for location based services

AS Saxena, V Goyal, D Bera - 2019 - repository.iitd.edu.in

... -up by alerting store as the user approaches, by using her real-... are named as **snapshot Location-based Services**; whereas those ... , any drift of user base may put big money into high risk. ...

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Replication

T Bain, B Pavliashvili, J Sack, M Benkovich... - Beginning SQL Server ..., 2004 - Springer

... of the Administrators group using a drive letter\$ format. ... Click Alerts to view the newly created replication alerts, ... publisher to the distributor (or **snapshot location**). The Snapshot Agent ...

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Windows forensic analysis

RD Pittman, D Shaver - Handbook of Digital Forensics and Investigation, 2010 - Elsevier

... warning banner window caption and the text of the warning ... complimentary virtual Disk device will be 6&38b32a79&1. ... }RP###**snapshot location** can be parsed and viewed the same ...

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The Role of Visual Learning in Honey Bee Foraging and Communication

B Kheradmand - 2019 - search.proquest.com

... Determining circuits using body-axis change between ... entities because using panoramic contexts could reduce the risk of ... the animal to the next **snapshot location** where the next vector ...

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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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Avi SHUA	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	15635.0003-01000	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	10412109	B2	2019-09-10	Loureiro et al.	Entire Document
	2	9177145	B2	2015-11-03	Todorović	Entire Document
	3	9519781	B2	2016-12-13	Golshan et al.	Entire Document
	4	9563777	B2	2017-02-07	Deng et al.	Entire Document
	5	9798885	B2	2017-10-24	Deng et al.	Entire Document
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	1	20070266433	A1	2007-11-15	Moore	Entire Document

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

Application Number		
Filing Date		
First Named Inventor	Avi SHUA	
Art Unit		
Examiner Name		
Attorney Docket Number	15635.0003-01000	

2	20140137190	A1	2014-05-15	Carey et al.	Entire Document
3	20150052520	A1	2015-02-19	Crowell et al.	Entire Document
4	20170011138	A1	2017-01-12	Venkatesh et al.	Entire Document
5	20180255080	A1	2018-09-06	Paine	Entire Document
6	20180293374	A1	2018-10-11	Chen	Entire Document

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(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Avi SHUA	
Art Unit		
Examiner Name		
Attorney Docket Number	15635.0003-01000	

EXAMINER SIGNATURE

Examiner Signature	/HASSAN SAADOUN/	Date Considered	02/23/2022
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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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

Application Number		
Filing Date		
First Named Inventor	Avi SHUA	
Art Unit		
Examiner Name		
Attorney Docket Number	15635.0003-01000	

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	/Wei Yuan/	Date (YYYY-MM-DD)	2021-05-26
Name/Print	Wei Yuan	Registration Number	71772

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.
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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.
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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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United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/330,998	05/26/2021	Avi SHUA	15635.0003-01000

CONFIRMATION NO. 3062

PUBLICATION NOTICE



OC000000129432683

22852
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

Title:TECHNIQUES FOR SECURING VIRTUAL MACHINES

Publication No.US-2021-0336976-A1

Publication Date:10/28/2021

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 publically 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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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/330,998	05/26/2021	Avi SHUA	15635.0003-01000	3062
22852	7590	08/18/2021	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			ART UNIT	PAPER NUMBER
			2491	
			NOTIFICATION DATE	DELIVERY MODE
			08/18/2021	ELECTRONIC

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

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

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

regional-desk@finnegan.com

<i>Decision Granting Request for Prioritized Examination (Track I)</i>	Application No. 17/330,998	Applicant(s) SHUA, Avi	
	Examiner Dale A Hall	Art Unit OPET	AIA (FITF) Status Yes
1. THE REQUEST FILED <u>26 May 2021</u> IS GRANTED . The above-identified application has met the requirements for prioritized examination A. ☒ for an original nonprovisional application (Track I). B. ☐ for an application undergoing continued examination (RCE). 2. The above-identified application will undergo prioritized examination. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs: A. filing a <u>petition for extension of time</u> to extend the time period for filing a reply; B. filing an <u>amendment to amend the application to contain more than four independent claims, more than thirty total claims</u>, or a multiple dependent claim; C. filing a <u>request for continued examination</u> ; D. filing a notice of appeal; E. filing a request for suspension of action; F. mailing of a notice of allowance; G. mailing of a final Office action; H. completion of examination as defined in 37 CFR 41.102; or I. abandonment of the application. Telephone inquiries with regard to this decision should be directed to Dale Hall at (571)272-3586. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.			
/Michelle R. Eason/ Lead Paralegal Specialist			



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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
17/330,998	05/26/2021		880	15635.0003-01000	21	3

CONFIRMATION NO. 3062

FILING RECEIPT



0000000127146831

22852
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

Date Mailed: 07/23/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Avi SHUA, Tel Aviv, ISRAEL;

Applicant(s)

Orca Security LTD., Tel Aviv, ISRAEL;

Assignment For Published Patent Application

Orca Security LTD., Tel Aviv, ISRAEL

Power of Attorney: The patent practitioners associated with Customer Number 22852

Domestic Priority data as claimed by applicant

This application is a CON of 16/585,967 09/27/2019
which claims benefit of 62/797,718 01/28/2019

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

If Required, Foreign Filing License Granted: 07/21/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/330,998**

Projected Publication Date: 10/28/2021

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

TECHNIQUES FOR SECURING VIRTUAL MACHINES

Preliminary Class

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Avi SHUA	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	15635.0003-01000	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	10412109	B2	2019-09-10	Loureiro et al.	Entire Document
	2	9177145	B2	2015-11-03	Todorović	Entire Document
	3	9519781	B2	2016-12-13	Golshan et al.	Entire Document
	4	9563777	B2	2017-02-07	Deng et al.	Entire Document
	5	9798885	B2	2017-10-24	Deng et al.	Entire Document
If you wish to add additional U.S. Patent citation information please click the Add button.						Add
U.S.PATENT APPLICATION PUBLICATIONS						Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20070266433	A1	2007-11-15	Moore	Entire Document

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

Application Number		
Filing Date		
First Named Inventor	Avi SHUA	
Art Unit		
Examiner Name		
Attorney Docket Number	15635.0003-01000	

2	20140137190	A1	2014-05-15	Carey et al.	Entire Document
3	20150052520	A1	2015-02-19	Crowell et al.	Entire Document
4	20170011138	A1	2017-01-12	Venkatesh et al.	Entire Document
5	20180255080	A1	2018-09-06	Paine	Entire Document
6	20180293374	A1	2018-10-11	Chen	Entire Document

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

FOREIGN PATENT DOCUMENTS

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

If you wish to add additional Foreign Patent Document citation information please click the Add button.

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

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

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

Application Number		
Filing Date		
First Named Inventor	Avi SHUA	
Art Unit		
Examiner Name		
Attorney Docket Number	15635.0003-01000	

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

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

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

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

Application Number	
Filing Date	
First Named Inventor	Avi SHUA
Art Unit	
Examiner Name	
Attorney Docket Number	15635.0003-01000

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	/Wei Yuan/	Date (YYYY-MM-DD)	2021-05-26
Name/Print	Wei Yuan	Registration Number	71772

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.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Avi SHUA	)	Parent Group Art Unit: 3600
	)	
Application No.: <i>To be Assigned</i> ;	)	Parent Examiner: <i>To Be Assigned</i>
(Continuation of U.S. Application	)	
16/585,967)	)	Parent Confirmation No.: 9843
	)	
Filed: Herewith	)	VIA EFS-WEB
	)	
For: TECHNIQUES FOR SECURING	)	
VIRTUAL MACHINES	)	
	)	

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

Dear Commissioner:

PRELIMINARY AMENDMENT

Prior to the examination of the above application, please amend this application
as follows:

Amendments to the Specification begin on page 2 of this paper.

Remarks begin on page 3 of this paper.

Amendments to the Specification:

Please amend the Specification at page 1, paragraph [001] as follows:

[001] This application is a continuation of U.S. Application No. 16/585,967 (now pending), filed September 27, 2019, which claims the benefit of U.S. Provisional Application No. 62/797,718 filed on January 28, 2019,~~the contents of which are hereby. Each of the above-referenced application is incorporated herein by reference~~ in its entirety.

REMARKS

By this Preliminary Amendment, Applicant has amended the specification to include a reference to the parent application to which the present application claims priority. No new matter has been added by these amendments.

Please grant any extensions of time required to enter this paper and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: May 26, 2021

By: /Wei Yuan/

Wei Yuan
Reg. No. 71,772
(202) 408-4103

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	
Filing Date	Herewith
First Named Inventor	Avi SHUA
Title	TECHNIQUES FOR SECURING VIRTUAL MACHINES
Art Unit	
Examiner Name	
Attorney Docket Number	15635.0003-01000

SIGNATURE of Applicant or Patent Practitioner

Signature	/Wei Yuan/	Date (Optional)	May 26, 2021
Name	Wei Yuan	Registration Number	71772
Title (if Applicant is a juristic entity)	Patent Attorney		
Applicant Name (if Applicant is a juristic entity)	Orca Security LTD.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) 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.**

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

(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:

22852

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

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Orca Security LTD.

- ☐ 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

Avi Shua

Title

CEO

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.

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

POWER OF ATTORNEY BY APPLICANT

No more than ten (10) patent practitioners total may be appointed as set forth below by name and registration number. This page need not be submitted if appointing the Patent Practitioner(s) associated with a Customer Number (see form PTO/AIA/82B):

Name	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 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.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15635.0003-01000
		Application Number	
Title of Invention	TECHNIQUES FOR SECURING VIRTUAL MACHINES		
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	
	Avi		SHUA		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Tel Aviv		Country of Residence ⁱ	L	
Mailing Address of Inventor:					
Address 1		c/o Orca Security LTD.			
Address 2		65 Yigal Alon St.			
City	Tel Aviv		State/Province		
Postal Code	6744316		Country ⁱ	IL	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	22852		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	TECHNIQUES FOR SECURING VIRTUAL MACHINES		
Attorney Docket Number	15635.0003-01000	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15635.0003-01000
		Application Number	
Title of Invention	TECHNIQUES FOR SECURING VIRTUAL MACHINES		

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	22852		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16585967	2019-09-27

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15635.0003-01000
		Application Number	
Title of Invention	TECHNIQUES FOR SECURING VIRTUAL MACHINES		
Prior Application Status	Expired	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16585967	Claims benefit of provisional	62797718	2019-01-28
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).

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15635.0003-01000
		Application Number	
Title of Invention	TECHNIQUES FOR SECURING VIRTUAL MACHINES		

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	15635.0003-01000
		Application Number	
Title of Invention	TECHNIQUES FOR SECURING VIRTUAL MACHINES		

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	Orca Security LTD.	
Mailing Address Information For Applicant:		
Address 1	65 Yigal Alon St.	
Address 2		
City	Tel Aviv	State/Province
Country	IL	Postal Code
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	15635.0003-01000
		Application Number	
Title of Invention	TECHNIQUES FOR SECURING VIRTUAL MACHINES		

Assignee	1		
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.			
Remove			
If the Assignee or Non-Applicant Assignee is an Organization check here. ☒			
Organization Name	Orca Security LTD.		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	65 Yigal Alon St.		
Address 2			
City	Tel Aviv	State/Province	
Country i	IL	Postal Code	6744316
Phone Number		Fax Number	
Email Address			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add			

Signature:[Remove](#)

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is **not** checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Wei Yuan/		Date (YYYY-MM-DD)	2021-05-26	
First Name	Wei	Last Name	Yuan	Registration Number	71772
Additional Signature may be generated within this form by selecting the Add button. Add					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15635.0003-01000
		Application Number	
Title of Invention	TECHNIQUES FOR SECURING VIRTUAL MACHINES		

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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.
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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.

**CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION
UNDER 37 CFR 1.102(e) (Page 1 of 1)**

First Named Inventor:	Avi SHUA	Nonprovisional Application Number (if known):	
Title of Invention:	TECHNIQUES FOR SECURING VIRTUAL MACHINES		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently \$0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.
2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.
3. The applicable box is checked below:

I. ☒ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

- i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.
---OR---
(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.
- ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, or the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

- i. A request for continued examination has been filed with, or prior to, this form.
- ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
- iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
- iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
- v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature <u>/Wei Yuan/</u>	Date <u>May 26, 2021</u>
Name (Print/Typed) <u>Wei Yuan</u>	Practitioner Registration Number <u>71772</u>

Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.*

☒ *Total of 1 forms are submitted.

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

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TECHNIQUES FOR SECURING VIRTUAL MACHINES

[001] This application claims the benefit of U.S. Provisional Application No. 62/797,718 filed on January 28, 2019, the contents of which are hereby incorporated by reference.

TECHNICAL FIELD

[002] This disclosure relates generally to cyber-security systems and, more specifically, to techniques for securing virtual machines.

BACKGROUND

[003] Organizations have increasingly adapted their applications to be run from multiple cloud computing platforms. Some leading public cloud service providers include Amazon®, Microsoft®, Google®, and the like.

[004] Virtualization is a key role in a cloud computing, allowing multiple applications and users to share the same cloud computing infrastructure. For example, a cloud storage service can maintain data of multiple different users.

[005] In one instance, virtualization can be achieved by means of virtual machines. A virtual machine emulates a number of “computers” or instances, all within a single physical device. In more detail, virtual machines provide the ability to emulate a separate operating system (OS), also referred to as a guest OS, and therefore a separate computer, from an existing OS (the host). This independent instance is typically isolated as a completely standalone environment.

[006] Modern virtualization technologies are also adapted by cloud computing platforms. Examples for such technologies include virtual machines, software containers, and serverless functions. With their computing advantages, applications and virtual machines running on top of virtualization technologies are also vulnerable to some cyber threats. For example, virtual machines can execute vulnerable software applications or infected operating systems.

[007] Protection of a cloud computing infrastructure, and particularly of virtual machines can be achieved via inspection of traffic. Traditionally, traffic inspection is performed by a network device connected between a client and a server (deployed in a cloud computing

platform or a data center) hosting virtual machines. Traffic inspection may not provide an accurate indication of the security status of the server due to inherent limitations, such as encryption and whether the necessary data is exposed in the communication.

[008] Furthermore, inspection of computing infrastructure may be performed by a network scanner deployed out of path. The scanner queries the server to determine if the server executes an application that possess a security threat, such as vulnerability in the application. The disadvantage of such a scanner is that the server may not respond to all queries by the scanner, or not expose the necessary data in the response. Further, the network scanner usually communicates with the server, and the network configuration may prevent it. In addition, some types of queries may require credentials to access the server. Such credentials may not be available to the scanner.

[009] Traffic inspection may also be performed by a traffic monitor that listens to traffic flows between clients and the server. The traffic monitor can detect some cyber threats, e.g., based on the volume of traffic. However, the monitor can detect threats only based on the monitored traffic. For example, misconfiguration of the server may not be detected by the traffic monitor. As such, traffic monitoring would not allow detection of vulnerabilities in software executed by the server.

[0010] To overcome the limitations of traffic inspection solutions, some cyber-security solutions, such as vulnerability management and security assessment solutions are based on agents installed in each server in a cloud computing platform or data center. Using agents is a cumbersome solution for a number of reasons, including IT resources management, governance, and performance. For example, installing agents in a large data center may take months.

[0011] It would therefore be advantageous to provide a security solution that would overcome the deficiencies noted above.

SUMMARY

[0012] A summary of several example embodiments of the disclosure follows. This summary is provided for the convenience of the reader to provide a basic understanding of such embodiments and does not wholly define the breadth of the disclosure. This summary is not an extensive overview of all contemplated embodiments, and is intended to neither identify key or critical elements of all embodiments nor to delineate the scope

of any or all aspects. Its sole purpose is to present some concepts of one or more embodiments in a simplified form as a prelude to the more detailed description that is presented later. For convenience, the term “some embodiments” or “certain embodiments” may be used herein to refer to a single embodiment or multiple embodiments of the disclosure.

[0013] Certain embodiments disclosed herein include a method for securing virtual cloud assets in a cloud computing environment against cyber threats, comprising: determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment; accessing the snapshot of the virtual disk based on the determined location; analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and alerting detected potential cyber threats based on a determined priority.

[0014] Certain embodiments disclosed herein also include a non-transitory computer readable medium having stored thereon instructions for causing a processing circuitry to execute a process, the process comprising: determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment; accessing the snapshot of the virtual disk based on the determined location; analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and alerting detected potential cyber threats based on a determined priority.

[0015] Certain embodiments disclosed herein also include a system for securing virtual cloud assets in a cloud computing environment against cyber threats, comprising: a processing circuitry; and a memory, the memory containing instructions that, when executed by the processing circuitry, configure the system to: determine a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment; access the snapshot of the virtual disk based on the determined location; analyze the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and alert detected potential cyber threats based on a determined priority.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The foregoing and other objects, features, and advantages of the disclosed embodiments will be apparent from the following detailed description taken in conjunction with the accompanying drawings.

[0017] Figures 1A and 1B are network diagrams utilized to describe the various embodiments.

[0018] Figure 2 is a flowchart illustrating a method detecting cyber threats, including potential vulnerabilities in virtual machines executed in a cloud computing platform according to some embodiments.

[0019] Figure 3 is an example block diagram of the security system according to an embodiment.

DETAILED DESCRIPTION

[0020] It is important to note that the embodiments disclosed herein are only examples of the many advantageous uses of the innovative teachings herein. In general, statements made in the specification of the present application do not necessarily limit any of the various claimed embodiments. Moreover, some statements may apply to some inventive features but not to others. In general, unless otherwise indicated, singular elements may be in plural and vice versa with no loss of generality. In the drawings, like numerals refer to like parts through several views.

[0021] Figs. 1A and 1B show an example network diagram 100 utilized to describe the various embodiments. A cloud computing platform 110 is communicably connected to a network 120. Examples of the cloud computing platform 110 may include a public cloud, a private cloud, a hybrid cloud, and the like. Examples for a public cloud, but are not limited to, AWS® by Amazon®, Microsoft Azure®, Google Cloud®, and the like. In some configurations, the disclosed embodiments operable in on premise virtual machines environments. The network 120 may be the Internet, the world-wide-web (WWW), a local area network (LAN), a wide area network (WAN), and other networks.

[0022] The arrangement of the example cloud computing platform 110 is shown in Fig. 1B. As illustrated, the platform 110 includes a server 115 and a storage 117, serving as the storage space for the server 115. The server 115 is a physical device hosting at least one virtual machine (VM) 119. The VM 119 is a protected VM, which may be any

virtual cloud asset including, but not limited to, a software container, a micro-service, a serverless function, and the like.

[0023] The storage 117 emulates virtual discs for the VMs executed in by the server 115. The storage 117 is typically connected to the server 115 through a high-speed connection, such as optic fiber allowing fast retrieval of data. In other configurations, the storage 117 may be part of the server 115. In this example illustrated in Fig. 1B, virtual disk 118-1 is allocated for the VM 119. The server 115, and hence the VM 119, may be executed in a client environment 130 within the platform 110.

[0024] The client environment 130 is an environment within the cloud computing platform 110 utilized to execute cloud-hosted applications of the client. A client may belong to a specific tenant. In some example embodiment, the client environment 130 may be part of a virtualized environment or on-premises virtualization environment, such as a VMware® based solution.

[0025] Also deployed in the cloud computing platform 110 is a security system 140 configured to perform the various disclosed embodiments. In some embodiments, the system 140 may be part of the client environment 130. In an embodiment, the security system 140 may be realized as a physical machine configured to execute a plurality of virtual instances, such as, but not limited to virtual machines executed by a host server. In yet another embodiment, the security system 140 may be realized as a virtual machine executed by a host server. Such a host server is a physical machine (device) and may be either the server 115, a dedicated server, a different shared server, or another virtualization-based computing entity, such as a serverless function.

[0026] In an embodiment, the interface between the client environment 130 and the security system 140 can be realized using APIs or services provided by the cloud computing platform 110. For example, in AWS, a cross account policy service can be utilized to allow interfacing the client environment 130 with the security system 140.

[0027] In the deployment, illustrated in Fig. 1, the configuration of resources of the cloud computing platform 110 is performed by means of the management console 150. As such, the management console 150 may be queried on the current deployment and settings of resources in the cloud computing platform 110. Specifically, the management console 150 may be queried, by the security system 140, about as the location (e.g., virtual

address) of the virtual disk 118-1 in the storage 117. The system 140 is configured to interface with the management console 150 through, for example, an API.

[0028] In some example embodiments, the security system 140 may further interface with the cloud computing platform 110 and external systems 170. The external systems may include intelligence systems, security information and event management (SIEM) systems, and mitigation tools. The external intelligence systems may include common vulnerabilities and exposures (CVE®) databases, reputation services, security systems (providing feeds on discovered threats), and so on. The information provided by the intelligence systems may detect certain known vulnerabilities identified in, for example, a CVE database.

[0029] According to the disclosed embodiments, the security system 140 is configured to detect vulnerabilities and other cyber threats related to the execution VM 119. The detection is performed while the VM 119 is live, without using any agent installed in the server 115 or the VM 119, and without relying on cooperation from VM 119 guest OS. Specifically, the security system 140 can scan and detect vulnerable software, non-secure configuration, exploitation attempts, compromised asserts, data leaks, data mining, and so on. The security system 140 may be further utilized to provide security services, such as incident response, anti-ransomware, and cyber insurance by accessing the security posture.

[0030] In some embodiments, the security system 140 is configured to query the cloud management console 150 for the address of the virtual disk 118-1 serving the VM 119 and a location of the snapshot. A VM's snapshot is a copy of the machine's virtual disk (or disk file) at a given point in time. Snapshots provide a change log for the virtual disk and are used to restore a VM to a particular point in time when a failure error occurs. Typically, any data that was writable on a VM becomes read-only when the snapshot is taken. Multiple snapshots of a VM can be created at multiple possible point-in-time restore points. When a VM reverts to a snapshot, current disk and memory states are deleted and the snapshot becomes the new parent snapshot for that VM.

[0031] The snapshot of the VM 119 is located and may be saved from the virtual disk 118-1 is accessed by the system 140. In an embodiment, the VM's 119 snapshot may be copied to the system 140. If such a snapshot does not exist, the system 140 may take a

new snapshot, or request such an action. The snapshots may be taken at a predefined schedule or upon predefined events (e.g., a network event or abnormal event). Further, the snapshots may be accessed or copied on a predefined schedule or upon predefined events. It should be noted that when the snapshot is taken or copied, the VM 119 still runs.

[0032] It should be noted that the snapshot of the virtual disk 118-1 may not be necessary stored in the storage 117, but for ease of the discussion it is assumed that the snapshot is saved in the storage 117. It should be further noted that the snapshot is being accessed without cooperation of the guest, virtual OS of the virtual machine.

[0033] The snapshot is parsed and analyzed by the security system 140 to detect vulnerabilities. This analysis of the snapshot does not require any interaction and/or information from the VM 119. As further demonstrated herein, the analysis of the snapshot by the system 140 does not require any agent installed on the server 115 or VM 119.

[0034] Various techniques can be utilized to analyze the snapshots, depending on the type of vulnerability and cyber threats to be detected. Following are some example embodiments for techniques that may be implemented by the security system 140.

[0035] In an embodiment, the security system 140 is configured to detect whether there is vulnerable code executed by the VM 119. The VM 119 being checked may be running, paused, or shutdown. To this end, the security system 140 is configured to match installed application lists, with their respective versions, to a known list of vulnerable applications. Further, the security system 140 may be configured to match the application files, either directly (using binary comparison) or by computing a cryptographic hash against database of files in vulnerable applications. The matching may be also on sub-modules of an application. Alternatively, the security system 140 may read installation logs of package managers used to install the packages of the application.

[0036] In yet another embodiment, the security system 140 is configured to verify whether the vulnerability is relevant to the VM 119. For example, if there is a vulnerable version or module not in use, the priority of that issue is reduced dramatically.

[0037] To this end, the security system 140 may be configured to check the configuration files of the applications and operating system of the VM 119; to verify access times to

files by the operating system; and/or to analyze the active application and/or system logs in order to deduce what applications and modules are running.

[0038] In yet another embodiment, the security system 140 may instantiate a copy of the VM 119 and/or a subset of applications of the VM 119 on the server 115 or a separate server and monitor all activity performed by the instance of the VM. The execution of the instance of the VM is an isolated sandbox, which can be a full VM or subset of it, such as a software container (e.g., Docker® container) or another virtualized instances. The monitored activity may be further analyzed to determine abnormality. Such analysis may include monitoring of API activity, process creation, file activity, network communication, registry changes, and active probing of the said subset in order to assess its security posture. This may include, but not limited to, actively communicating with the VM 119, using either legitimate communicate and/or attack attempts, to assess its posture and by that deriving the security posture of the entire VM 119.

[0039] In order to determine if the vulnerability is relevant to the VM 119, the security system 140 is configured to analyze the machine memory, as reflected in the page file. The page file is saved in the snapshot and extends how much system-committed memory (also known as “virtual memory”) a system can back. In an embodiment, analyzing the page file allows deduction of running applications and modules by the VM 119.

[0040] In an embodiment, the security system 140 is configured to read process identification number (PID) files and check their access or write times, which are matched against process descriptors. The PID can be used to deduce which processes are running, and hence the priority of vulnerabilities detected in processes existing on the disk. It should be noted the PID files are also maintained in the snapshot.

[0041] In yet another embodiment, the security system 140 is configured to detect cyber threats that do not represent vulnerabilities. For example, the security system 140 may detect and alert on sensitive data not being encrypted on the logical disk, private keys found on the disks, system credentials stored clearly on the disk, risky application features (e.g., support of weak cipher suites or authentication methods), weak passwords, weak encryption schemes, a disable address space layout randomization (ASLR) feature, suspicious manipulation to a boot record, suspicious PATH, LD_LIBRARY_PATH, or LD_PRELOAD definitions, services running on startup, and the like.

[0042] In an embodiment, the security system 140 may further monitor changes in sensitive machine areas, and alert on unexpected changes (e.g., added or changed application files without installation). In an example embodiment, this can be achieved by computing a cryptographic hash of the sensitive areas in the virtual disk and checking for differences over time.

[0043] In some embodiments, the detected cyber threats (including vulnerabilities) are reported to a user console 180 and/or a security information and event management (SIEM) system (not shown). The reported cyber threats may be filtered or prioritized based in part on their determined risk. Further, the reported cyber threats may be filtered or prioritized based in part on the risk level of the machine. This also reduces the number of alerts reported to the user.

[0044] In an embodiment, any detected cyber threats related to sensitive data (including personally identifiable information, PII) is reported at a higher priority. In an embodiment, such data is determined by searching for the PII, analyzing the application logs to determine whether the machine accessed PII/PII containing servers, or whether the logs themselves contain PII, and searching the machine memory, as reflected in the page file, for PII.

[0045] In an embodiment, the security system 140 may determine the risk of the VM 119 based on communication with an untrusted network. This can be achieved by analyzing the VM's 119 logs as saved in the virtual disk and can be derived from the snapshot.

[0046] In an example embodiment, the security system 140 may cause an execution of one or more mitigation actions. Examples of such actions may include blocking traffic from untrusted networks, halting the operation of the VM, quarantining an infected VM, and the like. The mitigation actions may be performed by a mitigation tool and not the system 140.

[0047] It should be noted that the example implementation shown in Fig. 1 is described with respect to a single cloud computing platform 110 hosting a single VM 119 in a single server 115, merely for simplicity purposes and without limitation on the disclosed embodiments. Typically, virtual machines are deployed and executed in a single cloud computing platform, a virtualized environment, or data center and can be protected without departing from the scope of the disclosure. It should be further noted that the

disclosed embodiments can operate using multiple security systems 140, each of which may operate in a different client environment.

[0048] Fig. 2 shows an example flowchart 200 illustrating a method for detecting cyber threats including potential vulnerabilities in virtual machines executed in a cloud computing platform according to some embodiments. The method may be performed by the security system 140.

[0049] At S210, a request, for example, to scan a VM for vulnerabilities is received. The request may be received, or otherwise triggered every predefined time interval or upon detection of an external event. An external event may be a preconfigured event, such as a network event or abnormal event including, but not limited to, changes to infrastructure such as instantiation of an additional container on existing VM, image change on a VM, new VM created, unexpected shutdowns, access requests from unauthorized users, and the like. The request may at least designate an identifier of the VM to be scanned.

[0050] At S220, a location of a snapshot of a virtual disk of the VM to be scanned is determined. In an embodiment, S220 may include determining the virtual disk allocated for the VM, prior to determining the location of the snapshot. As noted above, this can be achieved by querying a cloud management console. At S230, a snapshot of the virtual disk is accessed, or otherwise copied.

[0051] At S240, the snapshot is analyzed to detect cyber threats and potential vulnerabilities. S240 may also include detecting cyber threats that do not represent vulnerabilities. Examples for cyber threats and vulnerabilities are provided above.

[0052] In an embodiment, S240 may include comparing the snapshot to some baseline, which may include, but is not limited to, a copy of the image used to create the VM, (e.g., lists of applications, previous snapshots), cryptographic hashes gathered in the previous scan, analyzing logs of the VMs, instantiating a copy of the VM and executing the instance or applications executed by the VM in a sandbox, analyzing the machine memory, as reflected in the page file, or any combination of these techniques. Some example embodiments for analyzing the snapshots and the types of detected vulnerabilities and threats are provided above.

[0053] At S250, the detected cyber threats and/or vulnerabilities are reported, for example, as alerts. In an embodiment, S250 may include filtering and prioritizing the

reported alerts. In an embodiment, the prioritization is based, in part, on the risk level of a vulnerable machine. The filtering and prioritizing allow to reduce the number of alerts reported to the user. The filtering can be done performed on external intelligence on the likelihood of this vulnerability being exploited, analyzing the machine configuration in order to deduce the vulnerability relevancy, and correlating the vulnerability with the network location, and by weighting the risk of this machine being taken over by the attacker by taking into consideration the criticality of the machine in the organization based by the contents stored or other assets accessible from the VM 110.

[0054] At optional S260, a mitigation action may be triggered to mitigate a detected threat or vulnerability. A mitigation action may be executed by a mitigation tool and triggered by the system 140. Such an action may include blocking traffic from untrusted networks, halting the operation of the VM, quarantining an infected VM, and the like.

[0055] Fig. 3 is an example block diagram of the security system 140 according to an embodiment. The security system 140 includes a processing circuitry 310 coupled to a memory 320, a storage 330, and a network interface 340. In an embodiment, the components of the security system 140 may be communicatively connected via a bus 360.

[0056] The processing circuitry 310 may be realized as one or more hardware logic components and circuits. For example, and without limitation, illustrative types of hardware logic components that can be used include field programmable gate arrays (FPGAs), application-specific integrated circuits (ASICs), application-specific standard products (ASSPs), system-on-a-chip systems (SOCs), general-purpose microprocessors, microcontrollers, digital signal processors (DSPs), and the like, or any other hardware logic components that can perform calculations or other manipulations of information.

[0057] The memory 310 may be volatile (e.g., RAM, etc.), non-volatile (e.g., ROM, flash memory, etc.), or a combination thereof. In one configuration, computer readable instructions to implement one or more embodiments disclosed herein may be stored in the storage 330.

[0058] In another embodiment, the memory 320 is configured to store software. Software shall be construed broadly to mean any type of instructions, whether referred to as

software, firmware, middleware, microcode, hardware description language, or otherwise. Instructions may include code (e.g., in source code format, binary code format, executable code format, or any other suitable format of code). The instructions, when executed by the one or more processors, cause the processing circuitry 310 to perform the various processes described herein. Specifically, the instructions, when executed, cause the processing circuitry 310 to determine over-privileged roles vulnerabilities in serverless functions.

[0059] The storage 330 may be magnetic storage, optical storage, and the like, and may be realized, for example, as flash memory or other memory technology, CD-ROM, Digital Versatile Disks (DVDs), hard-drives, SSD, or any other medium which can be used to store the desired information. The storage 330 may store communication consumption patterns associated with one or more communications devices.

[0060] The network interface 340 allows the security system 140 to communicate with the external systems, such as intelligence systems, SIEM systems, mitigation systems, a cloud management console, a user console, and the like.

[0061] It should be understood that the embodiments described herein are not limited to the specific architecture illustrated in Fig. 3, and other architectures may be equally used without departing from the scope of the disclosed embodiments.

[0062] The various embodiments disclosed herein can be implemented as hardware, firmware, software, or any combination thereof. Moreover, the software is preferably implemented as an application program tangibly embodied on a program storage unit or computer readable medium consisting of parts, or of certain devices and/or a combination of devices. The application program may be uploaded to, and executed by, a machine comprising any suitable architecture. Preferably, the machine is implemented on a computer platform having hardware such as one or more central processing units (“CPUs”), a memory, and input/output interfaces. The computer platform may also include an operating system and microinstruction code. The various processes and functions described herein may be either part of the microinstruction code or part of the application program, or any combination thereof, which may be executed by a CPU, whether or not such a computer or processor is explicitly shown. In addition, various other peripheral units may be connected to the computer platform such as an additional data storage unit

and a printing unit. Furthermore, a non-transitory computer readable medium is any computer readable medium except for a transitory propagating signal.

[0063] As used herein, the phrase “at least one of” followed by a listing of items means that any of the listed items can be utilized individually, or any combination of two or more of the listed items can be utilized. For example, if a system is described as including “at least one of A, B, and C,” the system can include A alone; B alone; C alone; A and B in combination; B and C in combination; A and C in combination; or A, B, and C in combination.

[0064] All examples and conditional language recited herein are intended for pedagogical purposes to aid the reader in understanding the principles of the disclosed embodiment and the concepts contributed by the inventor to furthering the art, and are to be construed as being without limitation to such specifically recited examples and conditions. Moreover, all statements herein reciting principles, aspects, and embodiments of the disclosed embodiments, 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.

CLAIMS

What is claimed is:

1. A method for securing virtual cloud assets in a cloud computing environment against cyber threats, comprising:
 - determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment;
 - accessing the snapshot of the virtual disk based on the determined location;
 - analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and
 - alerting detected potential cyber threats based on a determined priority.
2. The method of claim 1, further comprising:
 - prioritizing each detected of potential cyber threats based on their respective risk to the protected virtual cloud asset; and
 - mitigating a potential cyber threat posing a risk to the protected virtual cloud asset.
3. The method of claim 1, wherein determining the location of the snapshot of at least one virtual disk further comprises:
 - determining a virtual disk allocated to the protected virtual cloud asset.
4. The method of claim 2, further comprising:
 - querying a cloud management console of the cloud computing platform to determine the location of the snapshot and the location of the virtual disk.
5. The method of claim 1, further comprising:
 - taking a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located.

6. The method of claim 1, wherein analyzing the snapshot of the protected virtual machine further comprises:

parsing a copy of the snapshot; and

scanning the parsed copy to detect the potential cyber threats, wherein the potential cyber threats include known and unknown vulnerabilities, and wherein the detection is based on a type of vulnerability.

7. The method of claim 6, wherein scanning the parsed copy further comprises any one of:

checking configuration files of applications and operating system installed in the protected virtual machine;

verifying access times to files by the operating system installed in the operating machine;

analyzing system logs to deduce what applications and modules executed in the protected virtual cloud asset; and

analyzing machine memory stored in the snapshot to deduce what applications and modules executed in the protected virtual cloud asset.

8. The method of claim 6, further comprising:

instantiating a copy of the protected virtual machine from the snapshot; and

monitoring all activity performed by the instance of the protected virtual cloud asset.

9. The method of claim 6, wherein scanning the parsed copy further comprises any one of:

reading process identification number (PID) files; and

checking if the at least the PID files access times match against process descriptors.

10. The method of claim 1, wherein the protected virtual cloud asset includes any one of: a virtual machine, a software container, a micro-service.

11. A non-transitory computer readable medium having stored thereon instructions for causing a processing circuitry to execute a process, the process comprising:
 - determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment;
 - accessing the snapshot of the virtual disk based on the determined location;
 - analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and
 - alerting detected potential cyber threats based on a determined priority.
12. A system for securing virtual cloud assets in a cloud computing environment against cyber threats, comprising:
 - a processing circuitry; and
 - a memory, the memory containing instructions that, when executed by the processing circuitry, configure the system to:
 - determine a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment;
 - access the snapshot of the virtual disk based on the determined location;
 - analyze the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and
 - alert detected potential cyber threats based on a determined priority.
13. The system of claim 12, wherein the system is further configured to:
 - prioritize each detected of potential cyber threats based on their respective risk to the protected virtual cloud asset; and
 - mitigate a potential cyber threat posing a risk to the protected virtual cloud asset.

14. The system of claim 12, wherein determining the location of the snapshot of at least one virtual disk further comprises:
- determining a virtual disk allocated to the protected virtual cloud asset.
15. The system of claim 13, wherein the system is further configured to:
- query a cloud management console of the cloud computing platform to determine the location of the snapshot and the location of the virtual disk.
16. The system of claim 12, wherein the system is further configured to:
- take a new snapshot of the protected virtual cloud asset, when an existing snapshot cannot be located.
17. The system of claim 12, wherein analyzing the snapshot of the protected virtual machine further comprises:
- parsing a copy of the snapshot; and
 - scanning the parsed copy to detect the potential cyber threats, wherein the potential cyber threats include known and unknown vulnerabilities, and wherein the detection is based on a type of vulnerability.
18. The system of claim 17, wherein scanning the parsed copy further comprises any one of:
- checking configuration files of applications and operating system installed in the protected virtual machine;
 - verifying access times to files by the operating system installed in the operating machine;
 - analyzing system logs to deduce what applications and modules executed in the protected virtual cloud asset; and
 - analyzing machine memory stored in the snapshot to deduce what applications and modules executed in the protected virtual cloud asset.
19. The system of claim 17, wherein the system is further configured to:

instantiate a copy of the protected virtual machine from the snapshot; and
monitor all activity performed by the instance of the protected virtual cloud asset.

20. The system of claim 17, wherein scanning the parsed copy further comprises any one of:

reading process identification number (PID) files; and
checking if the at least the PID files access times match against process descriptors.

21. The system of claim 12, wherein the protected virtual cloud asset includes any one of: a virtual machine, a software container, a micro-service.

ABSTRACT

A system and method for securing virtual cloud assets in a cloud computing environment against cyber threats. The method includes: determining a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the virtual cloud asset is instantiated in the cloud computing environment; accessing the snapshot of the virtual disk based on the determined location; analyzing the snapshot of the protected virtual cloud asset to detect potential cyber threats risking the protected virtual cloud asset; and alerting detected potential cyber threats based on a determined priority.

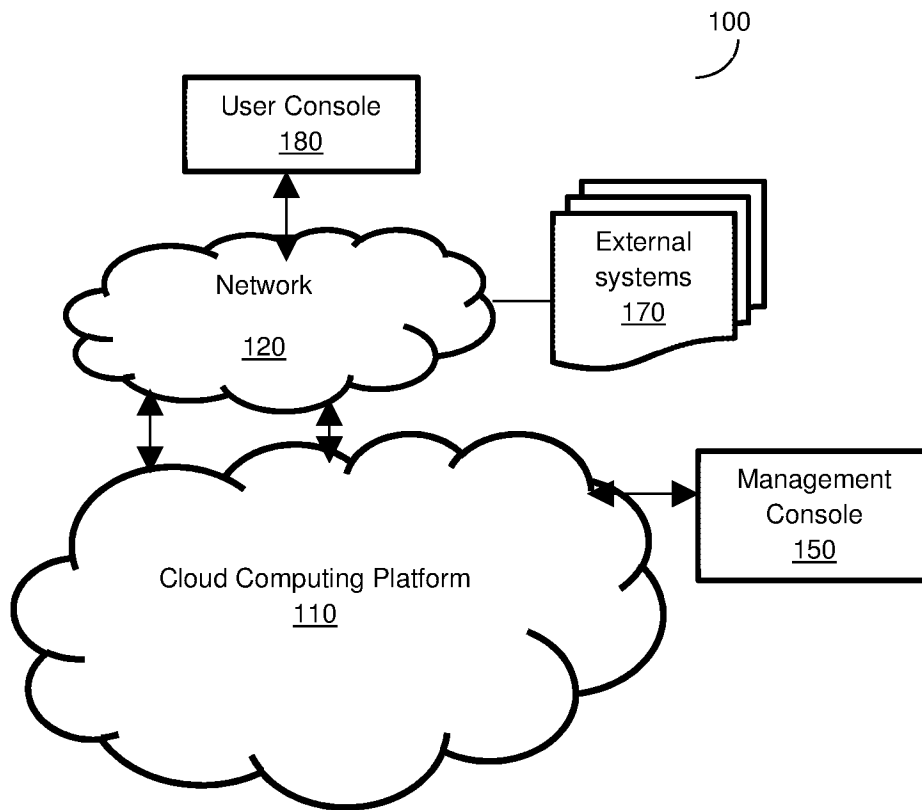


FIG. 1A

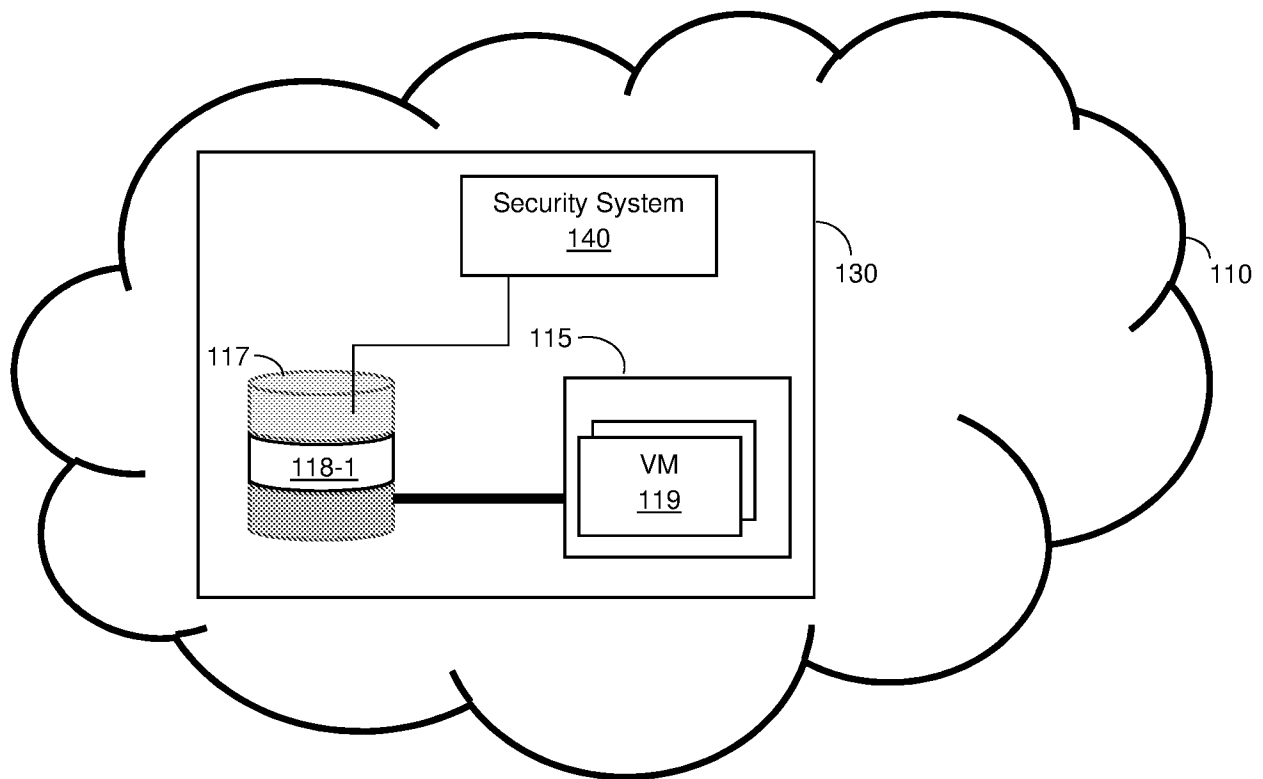


FIG. 1B

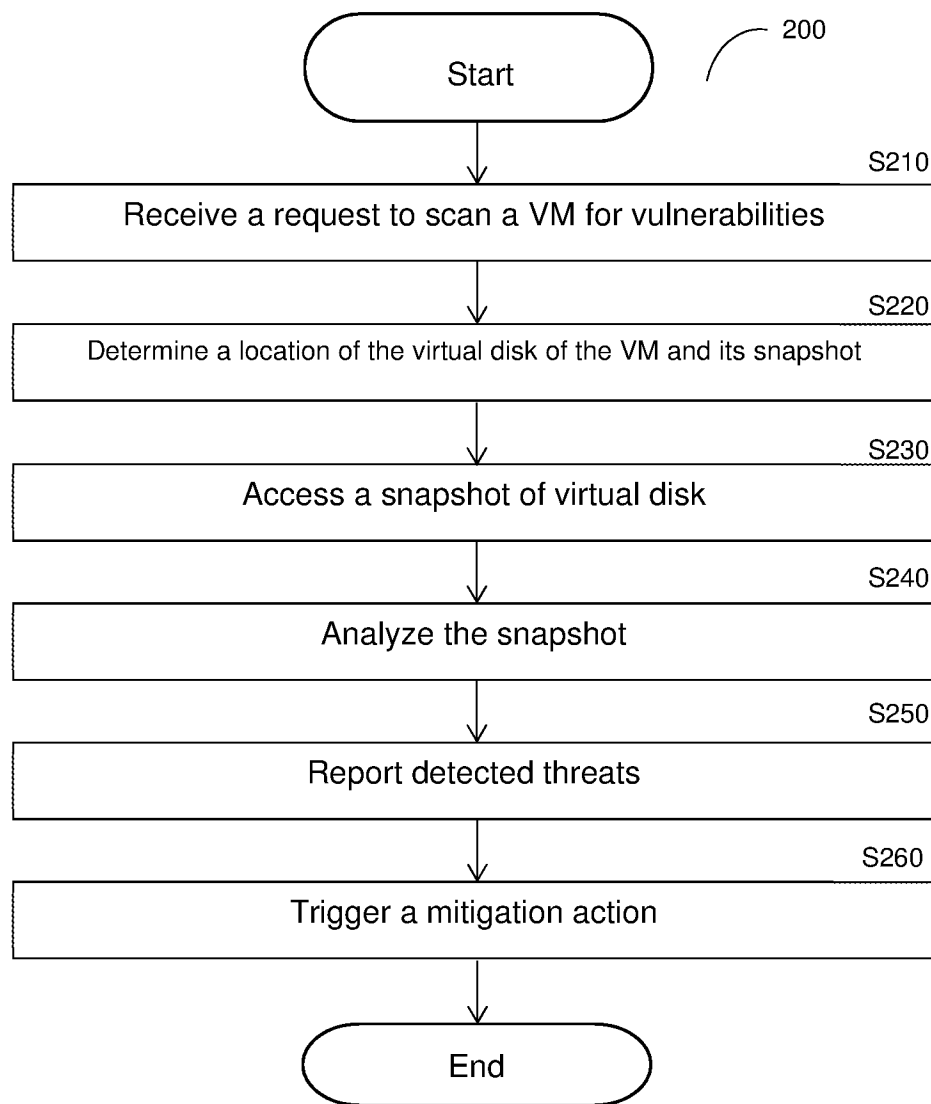


FIG. 2

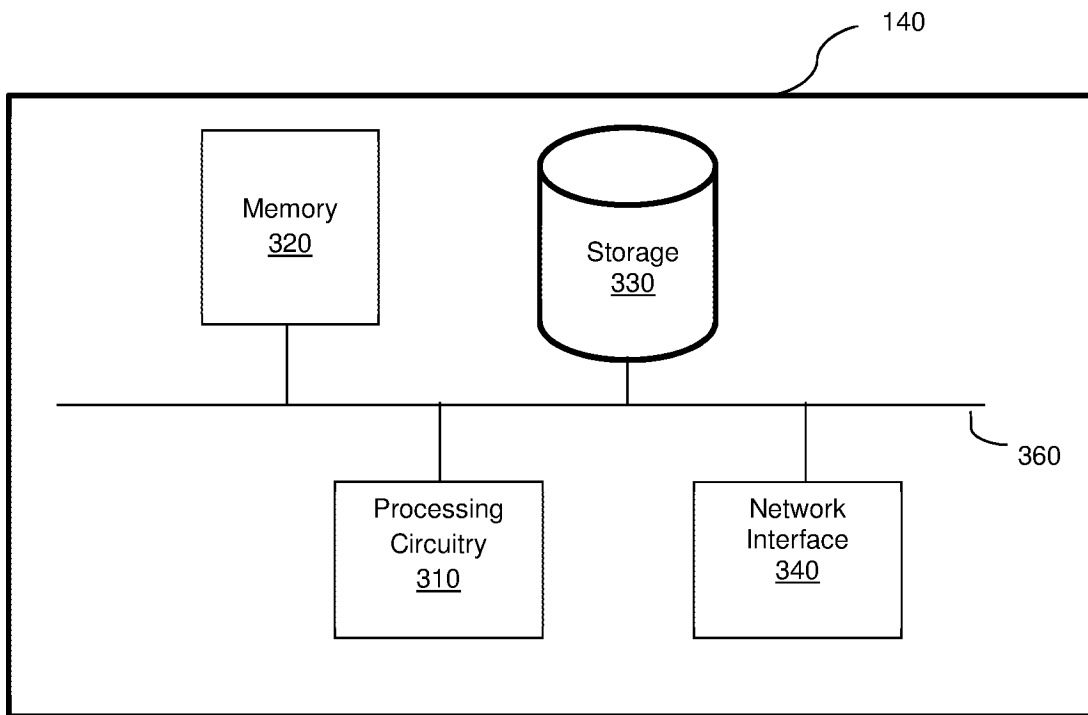


FIG. 3

DECLARATION AND ASSIGNMENT FOR PATENT APPLICATIONS

As a below named inventor (designated as "the undersigned"), I hereby declare that:

This declaration is directed to: ☒ The attached application, or
☐ United States Application No. ___ filed on __

The application is entitled:

TECHNIQUES FOR SECURING VIRTUAL MACHINES

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 have reviewed and understand the contents of the above-identified application.

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

POWER OF ATTORNEY: I hereby appoint all attorneys and agents of **M&B IP ANALYSTS, LLC** who are listed under the USPTO Customer Number shown below as my attorneys to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith.

Address all correspondence to **CUSTOMER NUMBER 122066**.

The undersigned hereby acknowledges 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.

ASSIGNMENT

WHEREAS, **Orca Security LTD.**, having an address at **65 Yigal Alon St., Tel Aviv 6744316 ISRAEL** (hereinafter "ASSIGNEE"), is desirous of acquiring the entire right, title and interest in, to and under the above-identified application and invention, and to any Letters Patent(s) that may be granted therefor.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, the undersigned has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto the said ASSIGNEE, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models, and designs which may hereafter be filed for said invention in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventor's certificates and designs which may be granted for said invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof;

DECLARATION AND ASSIGNMENT FOR PATENT APPLICATIONS

The undersigned authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

The undersigned covenants and agrees that he has full right to convey the entire interest herein assigned, and has not executed, and will not execute, any agreement in conflict herewith.

The undersigned further covenants and agrees that he will communicate to the said ASSIGNEE, its successors, legal representatives and assigns, any facts known respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said ASSIGNEE, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries.

In witness whereof, executed by the undersigned on the date opposite the undersigned name.

Full name of inventor: Avi SHUA

Inventor's Signature:  **Date:** 09/26/2019

Residence: Tel Aviv, ISRAEL

Post Office Address: c/o Orca Security LTD., 65 Yigal Alon St., Tel Aviv 6744316 ISRAEL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Avi SHUA	)	Group Art Unit: <i>To Be Assigned</i>
	)	
Application No.: <i>To be Assigned</i> ;	)	Examiner: <i>To Be Assigned</i>
(Continuation of U.S. Application	)	
16/585,967)	)	Confirmation No.: <i>To Be Assigned</i>
	)	
Filed: Herewith	)	<i>VIA EFS-WEB</i>
	)	
For: TECHNIQUES FOR SECURING	)	
VIRTUAL MACHINES	)	

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

Dear Commissioner:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), Applicant brings to the attention of the Examiner the documents on the attached listing. This Information Disclosure Statement is being filed with the filing of the above-referenced application.

The listed documents are of record in prior U.S. Application No. 16/585,967, filed September 27, 2019, upon which Applicant relies for the benefits provided in 35 U.S.C. § 120, and accordingly copies are not included.

Applicant respectfully requests that the Examiner consider the listed documents and indicate that they were considered by making appropriate notations on the attached form.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed

documents are material or constitute “prior art.” If the Examiner applies any of the documents as prior art against any claim in the application and Applicant determines that the cited documents do not constitute “prior art” under United States law, Applicant reserves the right to present to the U.S. Patent and Trademark Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

If there is any fee due in connection with the filing of this Statement, please charge the fee to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: May 26, 2021

By: /Wei Yuan/

Wei Yuan
Reg. No. 71,772
(202) 408-4103

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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

Commissioner:

This is a request for filing a Continuation Application under 37 C.F.R. § 1.53(b) of pending Prior Application No. 16/585,967, filed September 27, 2019 of Avi SHUA for TECHNIQUES FOR SECURING VIRTUAL MACHINES.

1. A Certification and Request for Prioritized Examination Under 37 CFR 1.102(e) (Track One) (PTO/AIA/424) is enclosed. Prioritized examination of the application is hereby requested.
2. Application having 23 pages, 3 independent claims, and 21 claims total is enclosed.
3. Drawings including 4 sheets of drawings (Figures 1A, 1B, 2, and 3) are enclosed.
4. An Application Data Sheet (ADS) is enclosed.
5. An oath or declaration for the inventor is enclosed.
6. An Information Disclosure Statement and PTO/SB08 are enclosed.
7. The prior application has been assigned to Orca Security LTD.
8. The power of attorney is to FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P., **Customer No. 22,852**.
9. Please address all correspondence to FINNEGAN, HENDERSON, FARABOW, GARRETT and DUNNER, L.L.P., **Customer Number 22,852**

10. The filing fee (for a small entity) is calculated as follows.

Basic Utility Application Filing Fee					\$80	\$80.00
Search Fee					\$350	\$350.00
Examination Fee					\$400	\$400.00
	Number of Claims		Basic	Extra		
Total Claims	21	-	20	1	x \$50 =	\$50.00
Independent Claims	3	-	3	0	x \$240 =	\$0
Size Fee: EFS-Web Filing						
Total Application Pages (specification, drawings, preliminary amendment filed with original application – DO NOT INCLUDE sequence listings)		26 x .75 - 100 ÷ 50 = 0* x \$210 = *Rounded up to next whole number				\$0
Request for Prioritized Examination (Track One) = \$2,100						\$2,100.00
Request for Prioritized Examination (Track One) Processing Fee = \$70						\$70.00
Subtotal						\$3,050.00
TOTAL FEES DUE						\$3,050.00

11. The fee of \$3,050.00 is submitted herewith.

12. The Commissioner is hereby authorized to charge any fees which may be required including fees due under 37 C.F.R. § 1.16 and any other fees due under 37 C.F.R. § 1.17, or credit any overpayment during the pendency of this application to Deposit Account No. 06-0916.

PETITION FOR EXTENSION OF TIME. If any extension of time is necessary for the filing of this application, including any extension in parent Application No. 16/585,967, filed September 27, 2019, for the purpose of maintaining copendency between the parent application and this application, and such extension has not otherwise been requested, such an extension is hereby requested, and the Commissioner is authorized to charge necessary fees for such an extension to Deposit Account No. 06-0916.

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: May 26, 2021

By: /Wei Yuan/
Wei Yuan
Reg. No. 71,772
(202) 408-4000

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		TECHNIQUES FOR SECURING VIRTUAL MACHINES		
First Named Inventor/Applicant Name:		Avi Shua		
Filer:		Wei Yuan/Lauren Brown		
Attorney Docket Number:		15635.0003-01000		
Filed as Small Entity				
Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
REQUEST FOR PRIORITIZED EXAMINATION	2817	1	2100	2100
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	1	50	50
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				3050

Electronic Acknowledgement Receipt

EFS ID:	42827565
Application Number:	17330998
International Application Number:	
Confirmation Number:	3062
Title of Invention:	TECHNIQUES FOR SECURING VIRTUAL MACHINES
First Named Inventor/Applicant Name:	Avi Shua
Customer Number:	22852
Filer:	Wei Yuan/Lauren Brown
Filer Authorized By:	Wei Yuan
Attorney Docket Number:	15635.0003-01000
Receipt Date:	26-MAY-2021
Filing Date:	
Time Stamp:	15:24:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 3050
RAM confirmation Number	E20215PF26111872
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	TrackOne Request	0003-01TrackReq.pdf	124831	no	2
			1550146b82595b24020ecfe9a023dcf21cf10813		
Warnings:					
Information:					
2		0003-01SpecA.pdf	178789	yes	23
			d2598cdcbc2a457dd64ceba13acbd62f6f9e1d277		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	13	
	Claims		14	18	
	Abstract		19	19	
	Drawings-only black and white line drawings		20	23	
Warnings:					
Information:					
3	Oath or Declaration filed	0003-01Dec.pdf	226334	no	2
			8810e37af9122da9ab4a9d1643c5fcd2d7a15d19		
Warnings:					
Information:					
4	Transmittal Letter	0003-01IDS.pdf	20520	no	2
			4b2e800bacd2ce7ac35b5ebc0bce4209b97537cc		
Warnings:					
Information:					

5	Information Disclosure Statement (IDS) Form (SB08)	0003-01SB08.pdf	1053645	no	5
			8f539ac5524d205f32d1a1e7ba17b20de9c1c84f		
Warnings:					
Information:					
6		0003-01PreAmd.pdf	22198	yes	3
			a1a33da96774710b17f5798dee88bcfc25fd0f2		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Applicant Arguments/Remarks Made in an Amendment		3	3	
Warnings:					
Information:					
7	Power of Attorney	0003-01PoAtty.pdf	166218	no	4
			05f5cab9051cad6f2ef1756c5a8ee550f3eae5b75		
Warnings:					
Information:					
8	Application Data Sheet	0003-01ADS.pdf	1256016	no	8
			eefe2456b14ef19e4afe4b047281552ec7c9d95e		
Warnings:					
Information:					
9	Transmittal of New Application	0003-01Xmit.pdf	22835	no	3
			ac8cb6caa9418e1c16e85e980cb08959cb76925d		
Warnings:					
Information:					
10	Fee Worksheet (SB06)	fee-info.pdf	41576	no	2
			4dcc907bc1450f9c57d746f15bc247a5a28ddb9		
Warnings:					

Information:	
Total Files Size (in bytes):	3112962
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.	

SCORE Placeholder Sheet for IFW Content

Application Number: 17330998

Document Date: 05/26/2021

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

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