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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/040,522	08/06/2019	10375215	PMOR0120H	8426

92045 7590 07/17/2019
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

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

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

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

Robert Paul Morris, Raleigh, NC;
SITTING MAN, LLC, Raleigh, NC;

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.



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert Paul Morris

Application No.: 16/040,522

File Date: 2018-07-19

Title: METHODS, SYSTEMS, AND COMPUTER
PROGRAM PRODUCTS FOR SHARING
INFORMATION FOR DETECTING AN IDLE TCP
CONNECTION

Confirmation No.: 8426

Examiner: Moustafa M MEKY

Art Unit: 2457

Docket No.: PMOR0120H

Date: Jun 12, 2019

**COMMENTS ON STATEMENT OF REASONS FOR
ALLOWANCE UNDER 37 C.F.R. § 1.104(e)**

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

Examiner:

In response to the Notice of Allowance dated 2019-06-06, please enter the following remarks.

Remarks:

The Examiner has stated the following in the Examiner's Statement of Reasons for Allowance:

The following is an examiner's statement of reasons for allowance: None of the prior art of record taken singularly or in combination teaches or suggests:

- detect an idle time period parameter field in a received TCP-variant packet, identify metadata in the idle time period parameter field for an idle time period, during which, no packet is communicated in a TCP-variant connection to keep the TCP-variant connection active, and determine, based on the metadata, a timeout attribute associated with the TCP-variant connection (claim 21):
- identifying idle information for detecting an idle time period, after which, a second protocol connection is subject to deactivation, generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information,

and sending, from a client computer to another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection (claim 40);

- identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in a received packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via a second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection (claim 51).

In response, applicant respectfully points out that features of at least some of the independent claims (e.g., 21, 40, and 51) are not necessarily the same as those the Examiner has highlighted above. For example, Claim 21 includes “detect an idle time period parameter field in the TCP-variant packet,” in the context claimed.

As additional, non-exhaustive examples, Claims 21, 40, and 51 recite the following, respectively:

21. A computer-implemented method, comprising:

at a server node:

causing data to be sent to a client node; and

providing access, to the client node, to code that, in response to being used by the client node, causes the client node to:

receive, by the client node, a transmission control protocol (TCP)-variant packet,

detect an idle time period parameter field in the TCP-variant packet,

identify metadata in the idle time period parameter field for an idle time period, during which, no packet is communicated in a TCP-variant connection to keep the TCP-variant connection active, and

determine, based on the metadata, a timeout attribute associated with the TCP-variant connection.

40. A computer-implemented method comprising:

at a server computer including a non-transitory memory storing a network application, and one or more processors in communication with the non-transitory memory for executing the network application to operate in accordance with a first protocol including a transmission control protocol (TCP):

causing a TCP connection to be established with a client computer;

causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer;

receiving second data, from the user of the client computer, utilizing the TCP connection in accordance with the TCP protocol and the HTTP protocol; and

permitting access to code that, based on use by the client computer, results in the client computer operating in accordance with a second protocol that is separate from the TCP, in order to establish a second protocol connection with another server computer, by:

identifying idle information for detecting an idle time period, based on which, the second protocol connection is subject to deactivation,

generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information, and

sending, from the client computer to the another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection.

51. A computer-implemented method comprising:

at a server computer including a non-transitory memory storing instructions, and one or more processors in communication with the non-transitory memory for executing the instructions such that the server computer operates in accordance with a first protocol including a transmission control protocol (TCP) in order to set up a TCP connection with a client computer:

causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer;

receiving, at the server computer, second data of the user of the client computer, utilizing the TCP connection in accordance with the TCP protocol and the HTTP protocol; and

permitting access to code that causes the client computer to operate in accordance with a second protocol that is different from the TCP and that operates above an Internet Protocol (IP) layer and below an HTTP application layer, in order to setup a second protocol connection with another server computer, by:

receiving, by the client computer from the another server computer, a packet,

identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via the second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and

determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

Clearly, at least some of the independent claims are not necessarily limited to the features that the Examiner has noted in the Examiner's Statement of Reasons for Allowance, as noted above (by way of example only). Instead, each of the claims should only be limited by the language existing therein.

Further, although Applicant agrees with the Examiner's conclusion that these claims are allowable, Applicant notes that the claims may be allowable for reasons other than those

Application No.: 16/040,522

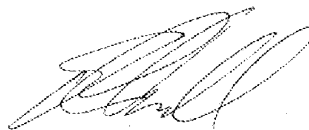
Date: Jun 12, 2019

Comments on Statement of Reasons for Allowance

identified by the Examiner and does not concede that the Examiner's characterizations of the terms of the claims and the prior art are correct. Each of the claims stands on its own merits and is patentable because of the combination it recites and not because of the presence or absence of any one particular element.

The Examiner's Statement was not prepared by Applicant and only contains the Examiner's possible positions in one or more reasons for allowability. Thus, any interpretation with respect to the Examiner's Statement of Reasons for Allowance should not be imputed to the Applicant.

Respectfully submitted,



Dated: 12 Jun 2019

The Caldwell Firm, LLC

PO Box 59655

Dallas, Texas 75229-0655

Telephone: (214) 734-2313

pcaldwell@thecaldwellfirm.com

Patrick E. Caldwell, Esq.

Reg. No. 44,580

Electronic Acknowledgement Receipt

EFS ID:	36284954
Application Number:	16040522
International Application Number:	
Confirmation Number:	8426
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120H
Receipt Date:	12-JUN-2019
Filing Date:	19-JUL-2018
Time Stamp:	23:24:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	PMOR0120H_Comments_vF_1 2-Jun-2019.pdf	188287	no	7
			6794f8d1b7e2d0ee8bc09ac63bd5390cdfa 2d6a1		
Warnings:					

Information:					
2	Issue Fee Payment (PTO-85B)	PMOR0120H_IssueFee_vF_12-Jun-2019.pdf	125348	no	1
			e84a383e3ddc24b274eb1438c86e177730 bb11d3		
Warnings:					
Information:					
Total Files Size (in bytes):				313635	
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16

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H	8426

TITLE OF INVENTION: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$500.00	\$0	09/06/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
MEKY, MOUSTAFA M	2457	709-201000

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

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Patrick E. Caldwell, Esq.

2 The Caldwell Firm, LLC

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)

Jenam Tech, LLC

Longview TX

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)

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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 /Patrick Caldwell/

Date 12 Jun 2019

Typed or printed name Patrick Caldwell

Registration No. 44,580

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Adjustment date: 06/13/2019 CCHAU2

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NOTICE OF ALLOWANCE AND FEE(S) DUE

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EXAMINER

MEKY, MOUSTAFA M

ART UNIT PAPER NUMBER

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DATE MAILED: 06/06/2019

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nonprovisional	SMALL	\$500	\$0.00	\$500.00	\$0	09/06/2019

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H	8426

TITLE OF INVENTION: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$500.00	\$0	09/06/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
MEKY, MOUSTAFA M	2457	709-201000

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

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

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

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

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

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

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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.
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H	8426
92045	7590	06/06/2019	EXAMINER	
The Caldwell Firm, LLC PO Box 59655 Dept. SVIPGP Dallas, TX 75229			MEKY, MOUSTAFA M	
			ART UNIT	PAPER NUMBER
			2457	
DATE MAILED: 06/06/2019				

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

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b) (2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/040,522	Applicant(s) Morris, Robert Paul	
	Examiner Moustafa M Meky	Art Unit 2457	AIA (FITF) Status No

-- 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 the RCE and the amendment filed 05/09/2019.
☐ 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 21-59. 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)	5. ☐ Examiner's Amendment/Comment
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 04/08/2019.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.	

/MOUSTAFA M MEKY/ Primary Examiner, Art Unit 2457	
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Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Detailed Action

1. Claims 21-59 are presenting for examination.

Allowed Claims

2. Claims 21-59 are allowed over the prior art of record.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: None of the prior art of record taken singularly or in combination teaches or suggests:

- detect an idle time period parameter field in a received TCP-variant packet, identify metadata in the idle time period parameter field for an idle time period, during which, no packet is communicated in a TCP-variant connection to keep the TCP-variant connection active, and determine, based on the metadata, a timeout attribute associated with the TCP-variant connection (claim 21);
- identifying idle information for detecting an idle time period, after which, a second protocol connection is subject to deactivation, generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information,

and sending, from a client computer to another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection (claim 40);

- identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in a received packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via a second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection (claim 51).

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

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Moustafa M Meky whose telephone number is (571)272-4005.

The examiner can normally be reached on Monday-Friday 9AM-5PM.

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, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

/MOUSTAFA M MEKY/
Primary Examiner, Art Unit 2457

05/15/2019

<i>Search Notes</i> 	Application/Control No. 16/040,522	Applicant(s)/Patent Under Reexamination Morris, Robert Paul
	Examiner Moustafa M Meky	Art Unit 2457

CPC - Searched*		
Symbol	Date	Examiner
H04L 69/16	05/15/2019	MMM

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
WEST (ALL FILES)	03/03/2019	MMM

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H04L	69/16	05/15/2019	MMM

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<i>Issue Classification</i> 	Application/Control No. 16/040,522	Applicant(s)/Patent Under Reexamination Morris, Robert Paul
	Examiner Moustafa M Meky	Art Unit 2457

CPC		
Symbol	Type	Version
H04L  69  16	F	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
 				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	39	
/MOUSTAFA M MEKY/ Primary Examiner, Art Unit 2457	15 May 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Issue Classification 	Application/Control No. 16/040,522	Applicant(s)/Patent Under Reexamination Morris, Robert Paul
	Examiner Moustafa M Meky	Art Unit 2457

INTERNATIONAL CLASSIFICATION			
CLAIMED			
G06F		15	16
NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	39	
/MOUSTAFA M MEKY/ Primary Examiner, Art Unit 2457	15 May 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Issue Classification 	Application/Control No. 16/040,522	Applicant(s)/Patent Under Reexamination Morris, Robert Paul
	Examiner Moustafa M Meky	Art Unit 2457

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19	8	28	17	37	26	46	35	55		
	2		11		20	9	29	18	38	27	47	36	56		
	3		12	1	21	10	30	19	39	28	48	37	57		
	4		13	2	22	11	31	20	40	29	49	38	58		
	5		14	3	23	12	32	21	41	30	50	39	59		
	6		15	4	24	13	33	22	42	31	51				
	7		16	5	25	14	34	23	43	32	52				
	8		17	6	26	15	35	24	44	33	53				
	9		18	7	27	16	36	25	45	34	54				

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 39	
/MOUSTAFA M MEKY/ Primary Examiner, Art Unit 2457 (Primary Examiner) _____ (Date) 15 May 2019		O.G. Print Claim(s) 1	O.G. Print Figure 3

Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. PMOR0120H	Application No. 16/040,522
		Applicant Jenam Tech, LLC	Confirmation Number 8426
		Filing Date 07/19/2018	Group Art Unit 2457

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate

Foreign Patent Documents or Published Foreign Patent Applications								
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
/M.M.M./	A	Notice of Allowance for USPAN 16/040,517 mailed 03/26/2019

Examiner Signature /MOUSTAFA M MEKY/	Date Considered 05/15/2019
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form (PTO-1449)

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL (Submitted Only via EFS-Web)

Application Number	16040522	Filing Date	2018-07-19	Docket Number (if applicable)	PMOR0120H	Art Unit	2457
First Named Inventor	Robert Paul Morris			Examiner Name	MEKY, MOUSTAFA M		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
Deposit Account No 504964

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature
Applicant Signature

Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

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

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

Signature of Registered U.S. Patent Practitioner			
Signature	Patrick Caldwell/	Date (YYYY-MM-DD)	2019-05-09
Name	Patrick Caldwell	Registration Number	44580

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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

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

Electronic Patent Application Fee Transmittal				
Application Number:		16040522		
Filing Date:		19-Jul-2018		
Title of Invention:		METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		
First Named Inventor/Applicant Name:		Robert Paul Morris		
Filer:		Patrick Edgar Caldwell		
Attorney Docket Number:		PMOR0120H		
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	650	650
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 (\$)				720



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
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Decision Date : May 9, 2019

In re Application of :

Robert Morris

DECISION ON PETITION

UNDER CFR 1.313(c)(2)

Application No : 16040522

Filed : 19-Jul-2018

Attorney Docket No : PMOR0120H

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed May 9, 2019 , 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 2457 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt

EFS ID:	35972144
Application Number:	16040522
International Application Number:	
Confirmation Number:	8426
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120H
Receipt Date:	09-MAY-2019
Filing Date:	19-JUL-2018
Time Stamp:	20:38:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 720
RAM confirmation Number	051019INTEFSW20382000
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	Petition automatically granted by EFS	petition-request.pdf	31600	no	2
			6c05956289953d025e1aab00a77c527a56fb5bbd		
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	PMOR0120H_RCE_20190509_vF.pdf	1349604	no	3
			6cc33956f67c8ba0d76b229e3a197829cbdd6c037		
Warnings:					
Information:					
3	Amendment Submitted/Entered with Filing of CPA/RCE	PMOR0120H_AmendmentB_RCE_vF_09-May-2019.pdf	93202	no	16
			dd206946468ab86638bc3db64dbc3127fd72983		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	32366	no	2
			754d0c2ff9ba6197458021d5fa71ca1760185919		
Warnings:					
Information:					
Total Files Size (in bytes):			1506772		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

Doc Code: 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	16040522	
Filing Date	19-Jul-2018	
First Named Inventor	Robert Morris	
Art Unit	2457	
Examiner Name	MOUSTAFA MEKY	
Attorney Docket Number	PMOR0120H	
Title	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	
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	/Patrick Caldwell/
Name	Patrick Caldwell
Registration Number	44580

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

ROBERT PAUL MORRIS

Application No.: 16/040,522

File Date: 07-19-2018

Title: METHODS, SYSTEMS, AND COMPUTER
PROGRAM PRODUCTS FOR SHARING
INFORMATION FOR DETECTING AN IDLE TCP
CONNECTION

Confirmation No.: 8426

Examiner: MEKY, MOUSTAFA M

Art Unit: 2457

Docket No.: PMOR0120H

Date: 5/9/2019

**AMENDMENT B
AND
REQUEST FOR CONTINUED EXAMINATION**

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

Examiner:

In response to the Notice of Allowance mailed 2019-03-20, please consider the following
believed to place the claims in condition for allowance.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

1.-20. (Cancelled)

21. (Currently Amended) A computer-implemented method, comprising:

at a server node:

causing data to be sent to a client node; and

providing access, to the client node, to code that, [[when]]in response to being
used by the client node, causes the client node to:

receive, by the client node, a transmission control protocol (TCP)-variant
packet,

detect an idle time period parameter field in the TCP-variant packet,

identify metadata in the idle time period parameter field for an idle time
period, during which, no packet is communicated in a TCP-variant connection to
keep the TCP-variant connection active, and

determine, based on the metadata, a timeout attribute associated with
the TCP-variant connection.

22. (Currently Amended) The method of claim 21 wherein the code, to which the access is
provided, is configured such that, [[when]]in response to being used by the client node, causes

the client node to operate such that one or more keep-alive packets are communicated, based on the idle time period.

23. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that one or more keep-alive packets are communicated, based on a keep-alive period.

24. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that one or more keep-alive packets are communicated, based on a keep-alive period that is, in turn, based on the idle time period.

25. (Currently Amended) The method of claim 24 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the keep-alive period is not user-configurable.

26. (Currently Amended) The method of claim 24 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the keep-alive period is not configurable, while the idle time period is configurable.

27. (Currently Amended) The method of claim 24 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the one or more keep-alive packets are empty.

28. (Currently Amended) The method of claim 24 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes

the client node to operate such that the keep-alive period is administered using a keep-alive timer.

29. (Currently Amended) The method of claim 28 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the keep-alive timer is separate from an idle timer that is used to administer the idle time period.

30. (Currently Amended) The method of claim 24 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the one or more keep-alive packets are conditionally communicated based on at least one keep-alive attribute.

31. (Currently Amended) The method of claim 30 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the keep-alive attribute is separate from the timeout attribute.

32. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that a negotiation is performed between another server node and the client node as to the idle time period.

33. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the TCP-variant packet is received for the purpose of negotiating a duration of the idle time period.

34. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the TCP-variant packet is received for informational purposes and not for negotiating a duration of the idle time period.

35. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to determine, based on the metadata, the timeout attribute associated with the TCP-variant connection, without an ability to negotiate, with another server node, a duration of the idle time period.

36. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to determine, based on the metadata, the timeout attribute associated with the TCP-variant connection, after negotiating, with another server node, a duration of the idle time period.

37. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to determine, based on the metadata, the timeout attribute associated with the TCP-variant connection, after sending, to another server node, a different TCP-variant packet with different metadata in an idle time period parameter field thereof.

38. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that a duration of the idle time period is configured by an application via an analog of a socket.

39. (Currently Amended) The method of claim 21 wherein the code, to which the access is provided, is configured such that, [[when]]in response to being used by the client node, causes the client node to operate such that the metadata is identified by an application via an analog of a socket.

40. (Currently Amended) A computer-implemented method comprising:

at a server computer including a non-transitory memory storing a network application, and one or more processors in communication with the non-transitory memory for executing the network application to operate in accordance with a first protocol including a transmission control protocol (TCP):

causing a TCP connection to be established with a client computer;

causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer;

receiving second data, from the user of the client computer, utilizing the TCP connection in accordance with the TCP protocol and the HTTP protocol; and

permitting access to code that, [[after]]based on use by the client computer, results in the client computer operating in accordance with a second protocol that is separate from the TCP, in order to establish a second protocol connection with another server computer, by:

identifying idle information for detecting an idle time period, [[after]]based on which, the second protocol connection is subject to deactivation,

generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information, and

sending, from the client computer to the another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection.

41. (Currently Amended) The computer-implemented method of claim 40 wherein:

the use of the code by the client computer results in the client computer utilizing the second protocol instead of the TCP in order to send, from the client computer to the another server computer, the second protocol packet, where the second protocol packet is not sent [[when]]based on establishing the TCP connection in accordance with the TCP, but is sent [[when]] based on establishing the second protocol connection so as to permit the second protocol connection to be at least partially closed [[when]] in response to being inactive based on the timeout attribute;

the access to the code is permitted by permitting the client computer to receive the code from the server computer utilizing the TCP connection and the HTTP protocol;

the timeout attribute is specified in a number of seconds;

the use of the code by the client computer results in the client computer operating such that the timeout attribute is used to keep the second protocol connection open [[when]]in response to being inactive, and to prevent the another server computer from closing the second protocol connection [[when]]in response to being inactive; and

the use of the code by the client computer results in the client computer operating such that the identifying the idle information is performed at a non-TCP layer other than a TCP layer, where the non-TCP layer is above an Internet Protocol (IP) layer and below an HTTP application layer.

42. (Currently Amended) The method of claim 41 wherein the code, to which the access is permitted, is configured to, based on use by the client computer, result in the client computer operating such that one or more keep-alive packets are communicated, based on a keep-alive period that is, in turn, based on the idle time period.

43. (Currently Amended) The method of claim 42 wherein the code, to which the access is permitted, is configured to, based on use by the client computer, result in the client computer operating such that the keep-alive period is not configurable, while the idle time period is configurable.

44. (Currently Amended) The method of claim 42 wherein the code, to which the access is permitted, is configured to, based on use by the client computer, result in the client computer operating such that the keep-alive period is administered using a keep-alive timer that is separate from an idle timer that is used to administer the idle time period.

45. (Currently Amended) The method of claim 42 wherein the code, to which the access is permitted, is configured to, based on use by the client computer, result in the client computer operating such that the one or more keep-alive packets are conditionally communicated based on at least one keep-alive attribute.

46. (Currently Amended) The method of claim 45 wherein the code, to which the access is permitted, is configured to, based on use by the client computer, result in the client computer operating such that the keep-alive attribute is separate from the timeout attribute.

47. (Currently Amended) The method of claim 41 wherein the code, to which the access is permitted, is configured to, ~~[[after]]~~based on use by the client computer, result in the client computer operating such that the second protocol packet is sent for the purpose of negotiating a duration of the idle time period.

48. (Currently Amended) The method of claim 41 wherein the code, to which the access is permitted, is configured to, ~~[[after]]~~based on use by the client computer, result in the client computer operating such that the second protocol packet is sent for informational purposes and not for negotiating a duration of the idle time period.

49. (Currently Amended) The method of claim 41 wherein the code, to which the access is permitted, is configured to, ~~[[after]]~~based on use by the client computer, result in the client computer operating such that a duration of the idle time period is configured by a particular application via an analog of a socket.

50. (Currently Amended) The method of claim 49 wherein the code, to which the access is permitted, is configured to, ~~[[after]]~~based on use by the client computer, result in the client computer operating such that one or more keep-alive packets are communicated, based on a keep-alive period that is, in turn, based on the idle time period.

51. (Previously Presented) A computer-implemented method comprising:

at a server computer including a non-transitory memory storing instructions, and one or more processors in communication with the non-transitory memory for executing the instructions such that the server computer operates in accordance with a first protocol including a transmission control protocol (TCP) in order to set up a TCP connection with a client computer:

causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer;

receiving, at the server computer, second data of the user of the client computer, utilizing the TCP connection in accordance with the TCP protocol and the HTTP protocol; and

permitting access to code that causes the client computer to operate in accordance with a second protocol that is different from the TCP and that operates above an Internet Protocol (IP) layer and below an HTTP application layer, in order to setup a second protocol connection with another server computer, by:

receiving, by the client computer from the another server computer, a packet,

identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via the second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and

determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

52. (Previously Presented) The method of claim 51 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that:

one or more keep-alive packets are communicated, based on a keep-alive period that is, in turn, based on the idle time period;

the keep-alive period is not configurable, while the idle time period is configurable; and

the one or more keep-alive packets are conditionally communicated based on at least one keep-alive attribute.

53. (Previously Presented) The method of claim 52 wherein the code, to which the access is permitted, is configured to cause the client computer to determine, based on the metadata, the timeout attribute associated with the second protocol connection, without an ability to negotiate, with the another server computer, a duration of the idle time period.

54. (Previously Presented) The method of claim 52 wherein the code, to which the access is permitted, is configured to cause the client computer to determine, based on the metadata, the timeout attribute associated with the second protocol connection, after negotiating, with the another server computer, a duration of the idle time period.

55. (Previously Presented) The method of claim 52 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that a duration of the idle time period is configured by an application via an analog of a socket.

56. (Previously Presented) The method of claim 51 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that at least one of:

the access to the code is permitted by sending the code from the server computer to the client computer;

the access to the code is permitted by receiving the code from the another server computer;

the communication includes only receiving;

the communication includes only sending;

the communication includes receiving and sending;

the second protocol includes a variant to the TCP;

the second protocol includes an extension to the TCP;

the second protocol includes a non-TCP protocol;

the second protocol connection includes a first connection that is set up;

the second protocol connection includes an initial connection that is set up;

the metadata specifies a number of seconds;

the metadata specifies a number of minutes;

the packet is informational;

the packet is received directly by the another server computer from the client computer;

the packet is received by the another server computer from the client computer via at least one other intermediate computer;

the timeout attribute is capable being the same as the metadata;

the timeout attribute is capable being different from the metadata;

the timeout attribute specifies a time duration;

the determining the timeout attribute includes at least one of modifying, creating, or deleting the timeout attribute;

the second protocol operates directly above the IP layer;

the second protocol operates directly below a HTTP application layer;

the code includes machine code or program code;

the code includes at least one instruction;

the code is used in connection with a link component;

the code includes a readable instruction;

the code includes a data structure;

the code includes a program component;

the code is a readable instruction;

the code is a data structure;

the code is a program component;

the code is software;

the code includes one or more links;

the code includes at least one of: a readable instruction, a data structure, or a program component;

the code resides at the server computer that is different from the another server computer, and is fetched from the server computer by the client computer; or

during the idle time period, a data-equipped second protocol packet is capable of being received by the client computer in another connection separate from the second protocol connection.

57. (Previously Presented) The method of claim 51 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that the access to the code is permitted by sending the code from the server computer to the client computer.

58. (Previously Presented) The method of claim 51 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that the access to the code is permitted by receiving the code at the client computer from the another server computer.

59. (Previously Presented) The method of claim 51 wherein the access to the code is permitted by the server computer allowing the code to be communicated to the client computer from the another server computer.

Remarks:

The claims have been clarified. It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Still yet, nothing in this reply should be construed as intention to concede any issue with regard to any claim, except as specifically stated in this reply. Finally, it should be noted that no claims are intended to be construed under 35 U.S.C. 112, paragraph 6.

Should the Examiner deem that any further amendment is desirable to place this Application in condition for allowance, Applicant invites the Examiner to telephone the undersigned attorney at the number listed below.

Respectfully submitted,



Dated: 09 May 2019
The Caldwell Firm, LLC
PO Box 59655
Dallas, Texas 75229-0655
Telephone: (214) 734-2313
pcaldwell@thecaldwellfirm.com

Patrick E. Caldwell, Esq.
Reg. No. 44,580

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/040,522		Filing Date 07/19/2018		☐ 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), (l), 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 \$230 =					
☐ 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	05/09/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 39	Minus	** 20	= 19		x \$50 =		950		
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x \$230 =		0		
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
								TOTAL ADD'L FEE		950	
		(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.								SLIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".								/DIANIECE M JACOBS/			
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".											
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.											

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

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

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/040,522	05/14/2019	10291749	PMOR0120H	8426

92045 7590 04/24/2019
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

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

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

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

Robert Paul Morris, Raleigh, NC;
SITTING MAN, LLC, Raleigh, NC;

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.

Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. PMOR0120H	Application No. 16/040,522
		Applicant Jenam Tech, LLC	Confirmation Number 8426
		Filing Date 07/19/2018	Group Art Unit 2457

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate

Foreign Patent Documents or Published Foreign Patent Applications								
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	A	Notice of Allowance for USPAN 16/040,517 mailed 03/26/2019

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form (PTO-1449)

Electronic Acknowledgement Receipt

EFS ID:	35664217
Application Number:	16040522
International Application Number:	
Confirmation Number:	8426
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120H
Receipt Date:	08-APR-2019
Filing Date:	19-JUL-2018
Time Stamp:	20:56:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	PMOR0120H_IDS_Coversheet_vF_08-Apr-2019.pdf	54733 ca0432ee6de68c27c6b6c9bed61d9e93bbfa2276	no	2

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	PMOR0120H_IDS_1449_vF_08-Apr-2019.pdf	121361	no	1
			aa8c7ea9f16b531d2f9e86932527656ac2183fe9		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Non Patent Literature	PMOR0120G_NOA_02202019_03262019.pdf	594430	no	13
			2d6cb55160e41d597fae9f89b0e0d7742d2a5fb1		
Warnings:					
Information:					
Total Files Size (in bytes):			770524		
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.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert Paul Morris

Application No.: 16/040,522

File Date: 2018-07-19

Title: METHODS, SYSTEMS, AND COMPUTER
PROGRAM PRODUCTS FOR SHARING
INFORMATION FOR DETECTING AN IDLE TCP
CONNECTION

Confirmation No.: 8426

Examiner: Moustafa M MEKY

Art Unit: 2457

Docket No.: PMOR0120H

Date: Apr 08, 2019

**INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR § 1.97(i)**

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

Examiner:

The reference(s) listed in the attached PTO Form 1449, cop(ies) of which is attached (when necessary), may be material to examination of the above-identified patent application. Applicants submit the reference(s) in compliance with their duty of disclosure pursuant to 37 CFR § 1.97(i). The Examiner is requested to make the reference(s) of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that the reference(s) indeed constitutes prior art.

Application No.: 16/040,522
Date: Apr 08, 2019
Information Disclosure Statement

Additionally, one or more patents (e.g. 9923995, 9923996) are the subject of pending litigation (EDTX 4:19-cv-00250; EDTX 4:19-cv-00249).

This Information Disclosure Statement is being filed after the payment of an issue fee. As such, it is believed no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any additional fees are due, the Commissioner is hereby authorized to charge such fees or credit any overpayment to Deposit Account 50-4964 (Order No. PMOR0120H).

Respectfully submitted,



Dated: 08 Apr 2019
The Caldwell Firm, LLC
PO Box 59655
Dallas, Texas 75229-0655
Telephone: (214) 734-2313
pcaldwell@thecaldwellfirm.com

Patrick E. Caldwell, Esq.
Reg. No. 44,580



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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H

92045
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

CONFIRMATION NO. 8426
IMPROPER CPOA LETTER



Date Mailed: 03/28/2019

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 03/23/2019. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/hteffer/

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



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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H

CONFIRMATION NO. 8426

IMPROPER CFR REQUEST



OC000000106918355

92045
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

Date Mailed: 03/28/2019

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Power of Attorney, Claims, Fees, System Limitations, and Miscellaneous

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- The ADS submitted on 03/23/2019 attempts to change the applicant but cannot be entered. Any request to change the applicant once the applicant has been specified must include (1) an application data sheet specifying the new applicant in the Applicant Information section, and (2) a statement under 37 CFR 3.73(c) (USPTO Form PTO/AIA/96 or an equivalent) to show chain of title to the new applicant. The application data sheet must contain markings to show the information that is being changed, with underlining for additions and strike-through or brackets for deletions. See 37 CFR 1.76(c)(2).

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

/hteffer/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert Paul Morris

Application No.: 16/040,522

File Date: 2018-07-19

Title: METHODS, SYSTEMS, AND COMPUTER
PROGRAM PRODUCTS FOR SHARING
INFORMATION FOR DETECTING AN IDLE TCP
CONNECTION

Confirmation No.: 8426

Examiner: Moustafa M MEKY

Art Unit: 2457

Docket No.: PMOR0120H

Date: Mar 28, 2019

**COMMENTS ON STATEMENT OF REASONS FOR
ALLOWANCE UNDER 37 C.F.R. § 1.104(e)**

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

Examiner:

In response to the Notice of Allowance dated 03/20/2019, please enter the following remarks.

Remarks:

The Examiner has stated the following in the Examiner's Statement of Reasons for Allowance:

The following is an examiner's statement of reasons for allowance: None of the prior art of record taken singularly or in combination teaches or suggests:

- detect an idle time period parameter field in a received TCP-variant packet, identify metadata in the idle time period parameter field for an idle time period, during which, no packet is communicated in a TCP-variant connection to keep the TCP-variant connection active, and determine, based on the metadata, a timeout attribute associated with the TCP-variant connection (claim 21);
- identifying idle information for detecting an idle time period, after which, a second protocol connection is subject to deactivation, generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information, and sending, from a client computer to another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection (claim 40);
- identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in a received packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via a second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection (claim 51).

In response, applicant respectfully points out that features of at least some of the independent claims (e.g. 21, 40, and 51) are not necessarily the same as those the Examiner has highlighted above. For example, the Examiner indicated, with respect to Claim 51 “a received packet” in the reasons for allowance, whereas Claim 51 (at the location cited) specifically recites “the packet”, in the context claimed.

As additional, non-exhaustive examples, Claims 21, 40, and 51 recite the following, respectively:

21. (Previously presented) A computer-implemented method, comprising:
- at a server node:
 - causing data to be sent to a client node; and
 - providing access, to the client node, to code that, when used by the client node, causes the client node to:
 - receive, by the client node, a transmission control protocol (TCP)-variant packet,
 - detect an idle time period parameter field in the TCP-variant packet,
 - identify metadata in the idle time period parameter field for an idle time period, during which, no packet is communicated in a TCP-variant connection to keep the TCP-variant connection active, and
 - determine, based on the metadata, a timeout attribute associated with the TCP-variant connection.
40. (Previously presented) A computer-implemented method comprising:
- at a server computer including a non-transitory memory storing a network application, and one or more processors in communication with the non-transitory memory for executing the network application to operate in accordance with a first protocol including a transmission control protocol (TCP):
 - causing a TCP connection to be established with a client computer;

causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer;

receiving second data, from the user of the client computer, utilizing the TCP connection in accordance with the TCP protocol and the HTTP protocol; and

permitting access to code that, after use by the client computer, results in the client computer operating in accordance with a second protocol that is separate from the TCP, in order to establish a second protocol connection with another server computer, by:

identifying idle information for detecting an idle time period, after which, the second protocol connection is subject to deactivation,

generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information, and

sending, from the client computer to the another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection.

51. (Previously presented) A computer-implemented method comprising:

at a server computer including a non-transitory memory storing instructions, and one or more processors in communication with the non-transitory memory for executing the instructions such that the server computer operates in accordance with a first protocol including a transmission control protocol (TCP) in order to set up a TCP connection with a client computer:

causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer;

receiving, at the server computer, second data of the user of the client computer, utilizing the TCP connection in accordance with the TCP protocol and the HTTP protocol; and

permitting access to code that causes the client computer to operate in accordance with a second protocol that is different from the TCP and that operates above an Internet Protocol (IP) layer and below an HTTP application layer, in order to setup a second protocol connection with another server computer, by:

receiving, by the client computer from the another server computer, a packet,

identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via the second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and

determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

Clearly, at least some of the independent claims are not necessarily limited to the features that the Examiner has noted in the Examiner's Statement of Reasons for Allowance, as noted above (by way of example only). Instead, each of the claims should only be limited by the language existing therein.

Further, although Applicant agrees with the Examiner's conclusion that these claims are allowable, Applicant notes that the claims may be allowable for reasons other than those identified by the Examiner and does not concede that the Examiner's characterizations of the terms of the claims and the prior art are correct. Each of the claims stands on its own merits and is patentable because of the combination it recites and not because of the presence or absence of any one particular element.

Application No.: 16/040,522

Date: Mar 27, 2019

Comments on Statement of Reasons for Allowance

The Examiner's Statement was not prepared by Applicant and only contains the Examiner's possible positions in one or more reasons for allowability. Thus, any interpretation with respect to the Examiner's Statement of Reasons for Allowance should not be imputed to the Applicant.

Respectfully submitted,



Dated: 28 Mar 2019

The Caldwell Firm, LLC

PO Box 59655

Dallas, Texas 75229-0655

Telephone: (214) 734-2313

pcaldwell@thecaldwellfirm.com

Patrick E. Caldwell, Esq.

Reg. No. 44,580

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)

92045 7590 03/20/2019
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H	8426

TITLE OF INVENTION: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	06/20/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
MEKY, MOUSTAFA M	2457	709-201000

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

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Patrick E. Caldwell, Esq.

2 The Caldwell Firm, LLC

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)

Jenam Tech, LLC

Longview TX

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 /Patrick Caldwell/

Date 28 Mar 2019

Typed or printed name Patrick Caldwell

Registration No. 44580

Electronic Patent Application Fee Transmittal				
Application Number:		16040522		
Filing Date:		19-Jul-2018		
Title of Invention:		METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		
First Named Inventor/Applicant Name:		Robert Paul Morris		
Filer:		Patrick Edgar Caldwell		
Attorney Docket Number:		PMOR0120H		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
UTILITY APPL ISSUE FEE	2501	1	500	500
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				500

Electronic Acknowledgement Receipt

EFS ID:	35566233
Application Number:	16040522
International Application Number:	
Confirmation Number:	8426
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120H
Receipt Date:	28-MAR-2019
Filing Date:	19-JUL-2018
Time Stamp:	22:14:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 500
RAM confirmation Number	032919INTEFSW22144500
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	Miscellaneous Incoming Letter	PMOR0120H_Comments_vF_28-Mar-2019.pdf	110273	no	6
			42da9f06b0313d6eb91381fad27a55599663f4e		
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	PMOR0120H_IssueFee_vF_28-Mar-2019.pdf	219173	no	1
			ac08513a98db888fd6d10d46ec76742784f0cf8b		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32313	no	2
			610a096be3c92e7122f70644589c9b63c568aa4e		
Warnings:					
Information:					
Total Files Size (in bytes):			361759		
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.					

POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date
16/040,522	2018-07-19

(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:
- 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):

Jenam Tech, LLC

- ☐ 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	/Andrew Gordon/	Date (Optional)	
Name	Andrew Gordon		
Title	Manager, Jenam Tech, LLC		

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 _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Jenam Tech, LLC

Application No./Patent No.: 16/040,522 Filed/Issue Date: 2018-07-19

Titled: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

Jenam Tech, LLC, a Limited Liability Company

(Name of Assignee)

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

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

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

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

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

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

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

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

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

1. From: Robert Paul Morris To: Sitting Man, LLC

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

2. From: Sitting Man, LLC To: Jenam Tech, LLC

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

[Page 1 of 2]

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

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

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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

4. From: _____ To: _____

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

5. From: _____ To: _____

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

6. From: _____ To: _____

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

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

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

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

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

/Patrick Caldwell/

23 Mar 2019

Signature

Date

Patrick Caldwell

44580

Printed or Typed Name

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

SUPPLEMENTAL APPLICATION DATA SHEET

In re Application of:

Robert Paul Morris

Application No.: 16/040,522

File Date: 2018-07-19

Title: METHODS, SYSTEMS, AND
COMPUTER PROGRAM PRODUCTS FOR
SHARING INFORMATION FOR DETECTING
AN IDLE TCP CONNECTION

Confirmation No.: 8426

Examiner: Moustafa M MEKY

Art Unit: 2457

Docket No.: PMOR0120H

Date: Mar 23, 2019

Please correct the Applicant Information as follows:

APPLICANT INFORMATION:

Applicant Type: Assignee
Organization Name: ~~Sitting Man, LLC~~ Jenam Tech, LLC
Mailing Address: ~~712 Latta Street~~ 211 W Tyler St, Suite C
City: ~~Raleigh~~ Longview
State: ~~NC~~ TX
Postal Code: ~~27607~~ 75601
Country: US

SIGNATURE:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.

Respectfully submitted,



Dated: 23 Mar 2019
The Caldwell Firm, LLC
PO Box 59655
Dallas, Texas 75229-0655
Telephone: (214) 734-2313
pcaldwell@thecaldwellfirm.com

Patrick E. Caldwell, Esq.
Reg. No. 44,580

Electronic Acknowledgement Receipt

EFS ID:	35510525
Application Number:	16040522
International Application Number:	
Confirmation Number:	8426
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120H
Receipt Date:	23-MAR-2019
Filing Date:	19-JUL-2018
Time Stamp:	21:01:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	PMOR_POA_JenamTech.pdf	163219 c1cf7c375c3077909b6bd840eb26820aa375c9e5	no	1

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	PMOR0120H_373_vF_23-Mar-2019.pdf	136159	no	3
			9eb5e0204fdec7d40cca96372cb911fde376833c		
Warnings:					
Information:					
3	Application Data Sheet	PMOR0120H_SupplementalADS_vF_23-Mar-2019.pdf	49401	no	1
			7db8f40c2f8ba4062a775304350a9da6a76f1dfe		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):			348779		
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.					



UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

92045 7590 03/20/2019
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

EXAMINER

MEKY, MOUSTAFA M

ART UNIT

PAPER NUMBER

2457

DATE MAILED: 03/20/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H	8426

TITLE OF INVENTION: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	06/20/2019

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

By fax, send to: (571)-273-2885

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

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

92045 7590 03/20/2019
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H	8426

TITLE OF INVENTION: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	06/20/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
MEKY, MOUSTAFA M	2457	709-201000

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

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

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

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

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

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

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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.
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H	8426
92045	7590	03/20/2019	EXAMINER	
The Caldwell Firm, LLC PO Box 59655 Dept. SVIPGP Dallas, TX 75229			MEKY, MOUSTAFA M	
			ART UNIT	PAPER NUMBER
			2457	
DATE MAILED: 03/20/2019				

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

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b) (2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/040,522	Applicant(s) Morris, Robert Paul	
	Examiner Moustafa M Meky	Art Unit 2457	AIA (FITF) Status No

-- 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 the amendment and the terminal disclaimer filed 02/07/2019.
☐ 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 21-59. 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)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.	

/MOUSTAFA M MEKY/ Primary Examiner, Art Unit 2457	
--	--

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Detailed Action

1. Claims 21-59 are presenting for examination.

Allowed Claims

2. Claims 21-59 are allowed over the prior art of record.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: None of the prior art of record taken singularly or in combination teaches or suggests:

- detect an idle time period parameter field in a received TCP-variant packet, identify metadata in the idle time period parameter field for an idle time period, during which, no packet is communicated in a TCP-variant connection to keep the TCP-variant connection active, and determine, based on the metadata, a timeout attribute associated with the TCP-variant connection (claim 21):
- identifying idle information for detecting an idle time period, after which, a second protocol connection is subject to deactivation, generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information, and sending, from a client computer to another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in

creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection (claim 40);

- identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in a received packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via a second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection (claim 51).

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

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Moustafa M Meky whose telephone number is (571)272-4005. The examiner can normally be reached on Monday-Friday 9AM-5PM.

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, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

MOUSTAF A M. MEKY
Primary Patent Examiner
Art Unit 2457

/MOUSTAF A M MEKY/
Primary Examiner, Art Unit 2457

03/03/2019

<i>Notice of References Cited</i>	Application/Control No. 16/040,522		Applicant(s)/Patent Under Reexamination Morris, Robert Paul	
	Examiner Moustafa M Meky		Art Unit 2457	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-9923995-B1	03-2018	Morris; Robert Paul	G06F9/50	1/1
*	B	US-20070008884-A1	01-2007	Tang; Bob	H04L29/06	370/230
*	C	US-20050135248-A1	06-2005	Ahuja, Sadhna	H04L47/10	370/235
	D					
	E					
	F					
	G					
	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.

<i>Search Notes</i> 	Application/Control No. 16/040,522	Applicant(s)/Patent Under Reexamination Morris, Robert Paul
	Examiner Moustafa M Meky	Art Unit 2457

CPC - Searched*		
Symbol	Date	Examiner
H04L 69/16	03/03/2019	MMM

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
WEST (ALL FILES)	03/03/2019	MMM

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H04L	69/16	03/03/2019	MMM

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<i>Issue Classification</i> 	Application/Control No. 16/040,522	Applicant(s)/Patent Under Reexamination Morris, Robert Paul
	Examiner Moustafa M Meky	Art Unit 2457

CPC						
Symbol				Type	Version	
H04L		69		16	F	2013-01-01

CPC Combination Sets						
Symbol			Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	39	
/MOUSTAFA M MEKY/ Primary Examiner, Art Unit 2457	03 March 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Issue Classification 	Application/Control No. 16/040,522	Applicant(s)/Patent Under Reexamination Morris, Robert Paul
	Examiner Moustafa M Meky	Art Unit 2457

INTERNATIONAL CLASSIFICATION			
CLAIMED			
G06F		15	 16
NON-CLAIMED			
			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	39	
/MOUSTAFA M MEKY/ Primary Examiner, Art Unit 2457	03 March 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Issue Classification 	Application/Control No. 16/040,522	Applicant(s)/Patent Under Reexamination Morris, Robert Paul
	Examiner Moustafa M Meky	Art Unit 2457

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19	8	28	17	37	26	46	35	55		
	2		11		20	9	29	18	38	27	47	36	56		
	3		12	1	21	10	30	19	39	28	48	37	57		
	4		13	2	22	11	31	20	40	29	49	38	58		
	5		14	3	23	12	32	21	41	30	50	39	59		
	6		15	4	24	13	33	22	42	31	51				
	7		16	5	25	14	34	23	43	32	52				
	8		17	6	26	15	35	24	44	33	53				
	9		18	7	27	16	36	25	45	34	54				

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 39	
/MOUSTAFA M MEKY/ Primary Examiner, Art Unit 2457 (Primary Examiner) _____ (Date) 03 March 2019		O.G. Print Claim(s) 1	O.G. Print Figure 3

WEST Search History for Application 16040522

Creation Date: 2019030321:24

Prior Art Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
idle adj2 (time or period or interval)	PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS	88357	ADJ	YES		03-03-2019
(idle adj2 (time or period or interval)) with metadata	PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS	68	ADJ	YES		03-03-2019
(idle adj2 (time or period or interval) with metadata) with timeout	PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS	11	ADJ	YES		03-03-2019
(idle adj2 (time or period or interval)) with timeout	PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS	711	ADJ	YES		03-03-2019
(idle adj2 (time or period or interval) with timeout) with packet	PGPB, USPT, USOC, EPAB, JPAB, DWPI,	103	ADJ	YES		03-03-2019

	TDBD, FPRS					
(idle adj2 (time or period or interval) with timeout with packet) with tcp	PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS	18	ADJ	YES		03-03-2019

Electronic Patent Application Fee Transmittal				
Application Number:		16040522		
Filing Date:		19-Jul-2018		
Title of Invention:		METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		
First Named Inventor/Applicant Name:		Robert Paul Morris		
Filer:		Patrick Edgar Caldwell		
Attorney Docket Number:		PMOR0120H		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	19	50	950
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Extension - 2 months with \$0 paid	2252	1	300	300
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	160	160
Total in USD (\$)				1410

Electronic Acknowledgement Receipt

EFS ID:	35093938
Application Number:	16040522
International Application Number:	
Confirmation Number:	8426
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120H
Receipt Date:	07-FEB-2019
Filing Date:	19-JUL-2018
Time Stamp:	22:01:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1410
RAM confirmation Number	020819INTEFSW22020900
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	Amendment/Req. Reconsideration-After Non-Final Reject	PMOR0120H_ROA_vF_07-Feb-2019.pdf	89227	no	15
			76063c865fe95f4c864f9e2261c80e63a9430794		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	34151	no	2
			5dc2eefc2653f3a9c24b5d35776905b94b17b3bf		
Warnings:					
Information:					
Total Files Size (in bytes):			123378		
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: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed		PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request	TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	
Application Number	16040522	
Filing Date	19-Jul-2018	
First Named Inventor	Robert Morris	
Attorney Docket Number	PMOR0120H	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	
☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action ☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.		
Owner	Percent Interest	
Jenam Tech, LLC	100%	
The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s) 9923995 as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns. In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later: - expires for failure to pay a maintenance fee; - is held unenforceable; - is found invalid by a court of competent jurisdiction; - is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321; - has all claims canceled by a reexamination certificate; - is reissued; or - is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer. ☐ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.		

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

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

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

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

Registration Number 44580

- ☐ A sole inventor

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

- ☐ A joint inventor; all of whom are signing this request

Signature	/Patrick Caldwell/
Name	Patrick Caldwell

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

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 16040522

Filing Date: 19-Jul-2018

Applicant/Patent under Reexamination: Morris

Electronic Terminal Disclaimer filed on February 7, 2019

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

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

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	35093943
Application Number:	16040522
International Application Number:	
Confirmation Number:	8426
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120H
Receipt Date:	07-FEB-2019
Filing Date:	19-JUL-2018
Time Stamp:	22:04:42
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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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 (Electronic)	eTerminal-Disclaimer.pdf	31951	no	2
			028a0c880f489114bfb0a05e1474a10bc7bd80647		

Warnings:

Information:	
Total Files Size (in bytes):	31951
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.	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

ROBERT PAUL MORRIS

Application No.: 16/040,522

File Date: 07-19-2018

Title: METHODS, SYSTEMS, AND COMPUTER
PROGRAM PRODUCTS FOR SHARING
INFORMATION FOR DETECTING AN IDLE TCP
CONNECTION

Confirmation No.: 8426

Examiner: MEKY, MOUSTAFA M

Art Unit: 2457

Docket No.: PMOR0120H

Date: 2/7/2019

AMENDMENT A

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

Examiner:

In response to the communication mailed 2018-10-04, please consider the following
believed to place the claims in condition for allowance.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

1.-20. (Cancelled)

21. (New) A computer-implemented method, comprising:

at a server node:

causing data to be sent to a client node; and

providing access, to the client node, to code that, when used by the client node,
causes the client node to:

receive, by the client node, a transmission control protocol (TCP)-variant
packet,

detect an idle time period parameter field in the TCP-variant packet,

identify metadata in the idle time period parameter field for an idle time
period, during which, no packet is communicated in a TCP-variant connection to
keep the TCP-variant connection active, and

determine, based on the metadata, a timeout attribute associated with
the TCP-variant connection.

22. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that one or more keep-alive packets are communicated, based on the idle time period.
23. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that one or more keep-alive packets are communicated, based on a keep-alive period.
24. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that one or more keep-alive packets are communicated, based on a keep-alive period that is, in turn, based on the idle time period.
25. (New) The method of claim 24 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the keep-alive period is not user-configurable.
26. (New) The method of claim 24 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the keep-alive period is not configurable, while the idle time period is configurable.
27. (New) The method of claim 24 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the one or more keep-alive packets are empty.
28. (New) The method of claim 24 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the keep-alive period is administered using a keep-alive timer.

29. (New) The method of claim 28 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the keep-alive timer is separate from an idle timer that is used to administer the idle time period.

30. (New) The method of claim 24 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the one or more keep-alive packets are conditionally communicated based on at least one keep-alive attribute.

31. (New) The method of claim 30 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the keep-alive attribute is separate from the timeout attribute.

32. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that a negotiation is performed between another server node and the client node as to the idle time period.

33. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the TCP-variant packet is received for the purpose of negotiating a duration of the idle time period.

34. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the TCP-variant packet is received for informational purposes and not for negotiating a duration of the idle time period.

35. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to determine, based on the metadata, the timeout attribute associated with the TCP-variant connection, without an ability to negotiate, with another server node, a duration of the idle time period.

36. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to determine, based on the metadata, the timeout attribute associated with the TCP-variant connection, after negotiating, with another server node, a duration of the idle time period.

37. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to determine, based on the metadata, the timeout attribute associated with the TCP-variant connection, after sending, to another server node, a different TCP-variant packet with different metadata in an idle time period parameter field thereof.

38. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that a duration of the idle time period is configured by an application via an analog of a socket.

39. (New) The method of claim 21 wherein the code, to which the access is provided, is configured such that, when used by the client node, causes the client node to operate such that the metadata is identified by an application via an analog of a socket.

40. (New) A computer-implemented method comprising:

at a server computer including a non-transitory memory storing a network application, and one or more processors in communication with the non-transitory memory for executing

the network application to operate in accordance with a first protocol including a transmission control protocol (TCP):

causing a TCP connection to be established with a client computer;

causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer;

receiving second data, from the user of the client computer, utilizing the TCP connection in accordance with the TCP protocol and the HTTP protocol; and

permitting access to code that, after use by the client computer, results in the client computer operating in accordance with a second protocol that is separate from the TCP, in order to establish a second protocol connection with another server computer, by:

identifying idle information for detecting an idle time period, after which, the second protocol connection is subject to deactivation,

generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information, and

sending, from the client computer to the another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection.

41. (New) The computer-implemented method of claim 40 wherein:

the use of the code by the client computer results in the client computer utilizing the second protocol instead of the TCP in order to send, from the client computer to the another server computer, the second protocol packet, where the second protocol packet is not sent when establishing the TCP connection in accordance with the TCP, but is sent when establishing the second protocol connection so as to permit the second protocol connection to be at least partially closed when inactive based on the timeout attribute;

the access to the code is permitted by permitting the client computer to receive the code from the server computer utilizing the TCP connection and the HTTP protocol;

the timeout attribute is specified in a number of seconds;

the use of the code by the client computer results in the client computer operating such that the timeout attribute is used to keep the second protocol connection open when inactive, and to prevent the another server computer from closing the second protocol connection when inactive; and

the use of the code by the client computer results in the client computer operating such that the identifying the idle information is performed at a non-TCP layer other than a TCP layer, where the non-TCP layer is above an Internet Protocol (IP) layer and below an HTTP application layer.

42. (New) The method of claim 41 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that one or more keep-alive packets are communicated, based on a keep-alive period that is, in turn, based on the idle time period.

43. (New) The method of claim 42 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that the keep-alive period is not configurable, while the idle time period is configurable.
44. (New) The method of claim 42 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that the keep-alive period is administered using a keep-alive timer that is separate from an idle timer that is used to administer the idle time period.
45. (New) The method of claim 42 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that the one or more keep-alive packets are conditionally communicated based on at least one keep-alive attribute.
46. (New) The method of claim 45 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that the keep-alive attribute is separate from the timeout attribute.
47. (New) The method of claim 41 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that the second protocol packet is sent for the purpose of negotiating a duration of the idle time period.
48. (New) The method of claim 41 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that the second protocol packet is sent for informational purposes and not for negotiating a duration of the idle time period.

49. (New) The method of claim 41 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that a duration of the idle time period is configured by a particular application via an analog of a socket.

50. (New) The method of claim 49 wherein the code, to which the access is permitted, is configured to, after use by the client computer, result in the client computer operating such that one or more keep-alive packets are communicated, based on a keep-alive period that is, in turn, based on the idle time period.

51. (New) A computer-implemented method comprising:

at a server computer including a non-transitory memory storing instructions, and one or more processors in communication with the non-transitory memory for executing the instructions such that the server computer operates in accordance with a first protocol including a transmission control protocol (TCP) in order to set up a TCP connection with a client computer:

causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer;

receiving, at the server computer, second data of the user of the client computer, utilizing the TCP connection in accordance with the TCP protocol and the HTTP protocol; and

permitting access to code that causes the client computer to operate in accordance with a second protocol that is different from the TCP and that operates

above an Internet Protocol (IP) layer and below an HTTP application layer, in order to setup a second protocol connection with another server computer, by:

receiving, by the client computer from the another server computer, a packet,

identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via the second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and

determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

52. (New) The method of claim 51 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that:

one or more keep-alive packets are communicated, based on a keep-alive period that is, in turn, based on the idle time period;

the keep-alive period is not configurable, while the idle time period is configurable; and

the one or more keep-alive packets are conditionally communicated based on at least one keep-alive attribute.

53. (New) The method of claim 52 wherein the code, to which the access is permitted, is configured to cause the client computer to determine, based on the metadata, the timeout

attribute associated with the second protocol connection, without an ability to negotiate, with the another server computer, a duration of the idle time period.

54. (New) The method of claim 52 wherein the code, to which the access is permitted, is configured to cause the client computer to determine, based on the metadata, the timeout attribute associated with the second protocol connection, after negotiating, with the another server computer, a duration of the idle time period.

55. (New) The method of claim 52 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that a duration of the idle time period is configured by an application via an analog of a socket.

56. (New) The method of claim 51 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that at least one of:

- the access to the code is permitted by sending the code from the server computer to the client computer;

- the access to the code is permitted by receiving the code from the another server computer;

- the communication includes only receiving;

- the communication includes only sending;

- the communication includes receiving and sending;

- the second protocol includes a variant to the TCP;

the second protocol includes an extension to the TCP;

the second protocol includes a non-TCP protocol;

the second protocol connection includes a first connection that is set up;

the second protocol connection includes an initial connection that is set up;

the metadata specifies a number of seconds;

the metadata specifies a number of minutes;

the packet is informational;

the packet is received directly by the another server computer from the client computer;

the packet is received by the another server computer from the client computer via at least one other intermediate computer;

the timeout attribute is capable being the same as the metadata;

the timeout attribute is capable being different from the metadata;

the timeout attribute specifies a time duration;

the determining the timeout attribute includes at least one of modifying, creating, or deleting the timeout attribute;

the second protocol operates directly above the IP layer;

the second protocol operates directly below a HTTP application layer;

the code includes machine code or program code;

the code includes at least one instruction;

the code is used in connection with a link component;

the code includes a readable instruction;

the code includes a data structure;

the code includes a program component;

the code is a readable instruction;

the code is a data structure;

the code is a program component;

the code is software;

the code includes one or more links;

the code includes at least one of: a readable instruction, a data structure, or a program component;

the code resides at the server computer that is different from the another server computer, and is fetched from the server computer by the client computer; or

during the idle time period, a data-equipped second protocol packet is capable of being received by the client computer in another connection separate from the second protocol connection.

57. (New) The method of claim 51 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that the access to the code is permitted by sending the code from the server computer to the client computer.

58. (New) The method of claim 51 wherein the code, to which the access is permitted, is configured to cause the client computer to operate such that the access to the code is permitted by receiving the code at the client computer from the another server computer.

59. (New) The method of claim 51 wherein the access to the code is permitted by the server computer allowing the code to be communicated to the client computer from the another server computer.

Remarks:

Claims 1-20 have been rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-14 & 25-30 of prior U.S. Patent No. 9,923,995. This rejection is deemed avoided by the clarifications made hereinabove to the claims. Note also the terminal disclaimer submitted herewith.

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Still yet, nothing in this reply should be construed as intention to concede any issue with regard to any claim, except as specifically stated in this reply. Finally, it should be noted that no claims are intended to be construed under 35 U.S.C. 112, paragraph 6.

Should the Examiner deem that any further amendment is desirable to place this Application in condition for allowance, Applicant invites the Examiner to telephone the undersigned attorney at the number listed below.

Respectfully submitted,



Dated: 07 Feb 2019
The Caldwell Firm, LLC
PO Box 59655
Dallas, Texas 75229-0655
Telephone: (214) 734-2313
pcaldwell@thecaldwellfirm.com

Patrick E. Caldwell, Esq.
Reg. No. 44,580

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**Courtesy Reminder for
Application Serial No: 16/040,522**

Attorney Docket No: PMOR0120H
Customer Number: 92045
Date of Electronic Notification: 10/04/2018

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

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eofficeaction@appcoll.com

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/040,522	07/19/2018	Robert Paul Morris	PMOR0120H	8426
92045	7590	10/04/2018		
The Caldwell Firm, LLC PO Box 59655 Dept. SVIPGP Dallas, TX 75229			EXAMINER MEKY, MOUSTAFA M	
			ART UNIT	PAPER NUMBER
			2457	
			NOTIFICATION DATE	DELIVERY MODE
			10/04/2018	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):

eofficeaction@apcoll.com
pcaldwell@thecaldwellfirm.com

Continuation of Application Papers 11): 07/19/2018

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

1. Claims 1-20 are presenting for examination.

Detailed Action

Statutory Type Double Patenting Rejection

2. 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.

3. Claims 1-20 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-14 & 25-30 of prior U.S. Patent No. 9,923,995. This is a statutory double patenting rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Moustafa M Meky whose telephone number is (571)272-4005. The examiner can normally be reached on Monday-Friday 9AM-5PM.

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, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

MOUSTAFA M. MEKY
Primary Patent Examiner
Art Unit 2457

/MOUSTAFA M MEKY/
Primary Examiner, Art Unit 2457

09/30/2018

<i>Notice of References Cited</i>	Application/Control No. 16/040,522		Applicant(s)/Patent Under Reexamination	
	Examiner Moustafa M Meky		Art Unit 2457	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-9923995-B1	03-2018	Morris; Robert Paul	G06F9/50	1/1
	B					
	C					
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FOREIGN PATENT DOCUMENTS

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Notice of References Cited

Part of Paper No. 20180930

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		16/040,522
	Filing Date		07/19/2018
	First Named Inventor	Robert Paul Morris	
	Art Unit	2457 Meky	
	Examiner Name		
	Attorney Docket Number	PMOR0120	

U.S.PATENTS						
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	6412006	B2	2002-06-25	Naudus	
	2	7404210	B2	2008-07-22	Lin	
	3	7426569	B2	2008-09-16	Dunk	
	4	7684346	B2	2010-03-23	Valli	
	5	7720989	B2	2010-05-18	Dunk	
	6	7729271	B2	2010-06-01	Tsuchiya et al.	
	7	8073964	B2	2011-12-06	Dunk	
	8	8219606	B2	2012-07-10	Morris	

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	Filing Date		07/19/2018
	First Named Inventor	Robert Paul Morris	
	Art Unit	2457 Meky	
	Examiner Name		
	Attorney Docket Number	PMOR0120	

U.S.PATENT APPLICATION PUBLICATIONS						
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	20050054347	A1	2005-03-10	Kakani	
	2	20050063304	A1	2005-03-24	Sillasto et al.	
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	5	20100057844	A1	2010-03-04	Johnson	
	6	20110213820	A1	2011-09-01	Morris	

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

Application Number	16/040,522
Filing Date	07/1/2018
First Named Inventor	Robert Paul Morris
Art Unit	2457
Examiner Name	Meky
Attorney Docket Number	PMOR0120

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	Allman, M., Paxson, V., Stevens, W., "TCP Congestion Control", RFC 2581, Internet Engineering Task Force, http://tools.ietf.org/rfc/rfc2581.txt , April 1999	☐
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	6	Nagle, John, "Congestion Control in IP/TCP Internetworks", RFC 896, Ford Aerospace and Communications Corporation, http://tools.ietf.org/rfc/rfc896.txt , January 1984	☐
	7	Postel, John(ed.), Editor; "Transmission Control Protocol - DARPA Internet Protocol Specification", RFC 793, USC/Information Sciences Institute, http://tools.ietf.org/rfc/rfc793.txt , September 1981	☐

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EXAMINER SIGNATURE

Examiner Signature	/MOUSTAFA M MEKY/	Date Considered	09/30/2018
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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	Robert Paul Morris
Art Unit	
Examiner Name	
Attorney Docket Number	PMOR0120

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	/Patrick Caldwell/	Date (YYYY-MM-DD)	2018-07-19
Name/Print	Patrick Caldwell	Registration Number	44580

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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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		16/040,522
	Filing Date		07/19/2018
	First Named Inventor	Robert Paul Morris	
	Art Unit	2457 Meky	
	Examiner Name		
	Attorney Docket Number	PMOR0120	

U.S.PATENTS						
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					

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

U.S.PATENT APPLICATION PUBLICATIONS						
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					

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

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

Application Number	16/040,522
Filing Date	07/19/2018
First Named Inventor	Robert Paul Morris
Art Unit	2457
Examiner Name	Meky
Attorney Docket Number	PMOR0120

1	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2012-06-21	☐
2	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-03-04	☐
3	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-09-27	☐
4	Office Action Summary in U.S. Pat. App. No. 12/714454 dated 2012-02-23	☐
5	Office Action Summary in U.S. Pat. App. No. 13/477,402 dated 2014-09-24	☐
6	Office Action Summary in U.S. Pat. App. No. 15/694,802 dated 2017-11-29	☐

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

EXAMINER SIGNATURE

Examiner Signature	/MOUSTAF A M MEKY/	Date Considered	09/30/2018
--------------------	--------------------	-----------------	------------

*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	Robert Paul Morris
Art Unit	
Examiner Name	
Attorney Docket Number	PMOR0120

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	/Patrick Caldwell/	Date (YYYY-MM-DD)	2018-07-19
Name/Print	Patrick Caldwell	Registration Number	44580

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

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Bibliographic Data

Application No: 16/040,522

Foreign Priority claimed: ☐ Yes ☒ No

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

☐ Met After Allowance

Verified and Acknowledged: /MOUSTAFA M MEKY/

Examiner's Signature

Initials

Title:

METHODS, SYSTEMS, AND COMPUTER PROGRAM
PRODUCTS FOR SHARING INFORMATION FOR DETECTING
AN IDLE TCP CONNECTION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/19/2018	709	2457	PMOR0120H
RULE			

APPLICANTS

SITTING MAN, LLC, Raleigh, NC,

INVENTORS

Robert Paul Morris Raleigh, NC, UNITED STATES

CONTINUING DATA

This application is a CON of 15915047 03/07/2018 PAT 10075564

15915047 is a CON of 15694802 09/03/2017 PAT 9923995

15694802 is a CIP of 14667642 03/24/2015

14667642 is a CIP of 13477402 05/22/2012

13477402 is a CON of 12714454 02/27/2010 PAT 8219606

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/27/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

The Caldwell Firm, LLC

PO Box 59655

Dept. SVIPGP

Dallas, TX 75229

UNITED STATES

FILING FEE RECEIVED

\$785



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 NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/040,522	07/19/2018	2414	785	PMOR0120H	20	3

CONFIRMATION NO. 8426

FILING RECEIPT

92045

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229



CC000000101867120

Date Mailed: 08/28/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Robert Paul Morris, Raleigh, NC;

Applicant(s)

SITTING MAN, LLC, Raleigh, NC;

Power of Attorney: The patent practitioners associated with Customer Number 92045

Domestic Priority data as claimed by applicant

This application is a CON of 15/915,047 03/07/2018 PAT 10075564
which is a CON of 15/694,802 09/03/2017 PAT 9923995
which is a CIP of 14/667,642 03/24/2015 ABN
which is a CIP of 13/477,402 05/22/2012 ABN
which is a CON of 12/714,454 02/27/2010 PAT 8219606

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: 08/27/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/040,522**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

**** SMALL ENTITY ****

Title

METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING
INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

Preliminary Class

370

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

SelectUSA

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 U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/040,522			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	330		N/A			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A			
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *	x 50 =	0.00	OR				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 230 =	0.00					
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00					
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL			
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus **	x	=	OR	x	=	
	Independent (37 CFR 1.16(h))	*	Minus ***	x	=	OR	x	=	
	Application Size Fee (37 CFR 1.16(s))					OR			
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR			
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE			
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus **	x	=	OR	x	=	
	Independent (37 CFR 1.16(h))	*	Minus ***	x	=	OR	x	=	
	Application Size Fee (37 CFR 1.16(s))					OR			
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR			
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									

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:
- 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):

- ☐ 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	/Robert Paul Morris/	Date (Optional)	
Name	Robert Paul Morris		
Title	Managing Member		

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 _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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.

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

**Title of
Invention**

**METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING
INFORMATION FOR DETECTING AN IDLE TCP CONNECTION**

As the below named inventor, I hereby declare that:

This declaration
is directed to:

☒

The attached application, or

☐

United States application or PCT international application number _____

filed on _____.

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

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

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

WARNING:

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

LEGAL NAME OF INVENTOR

Inventor: Robert Paul Morris

Date (Optional) : _____

Signature: /Robert Paul Morris/

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

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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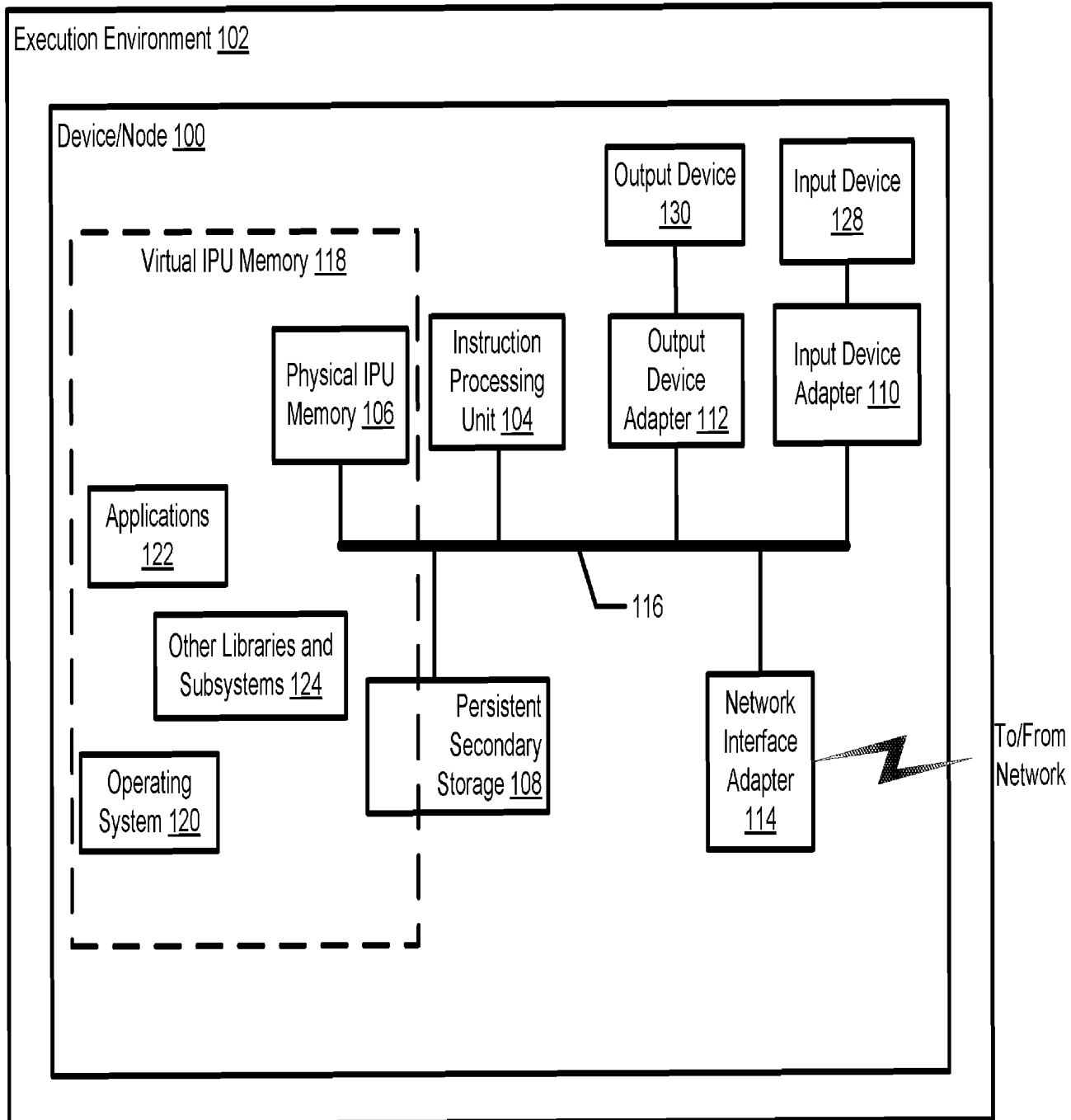
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1/8

Fig. 1

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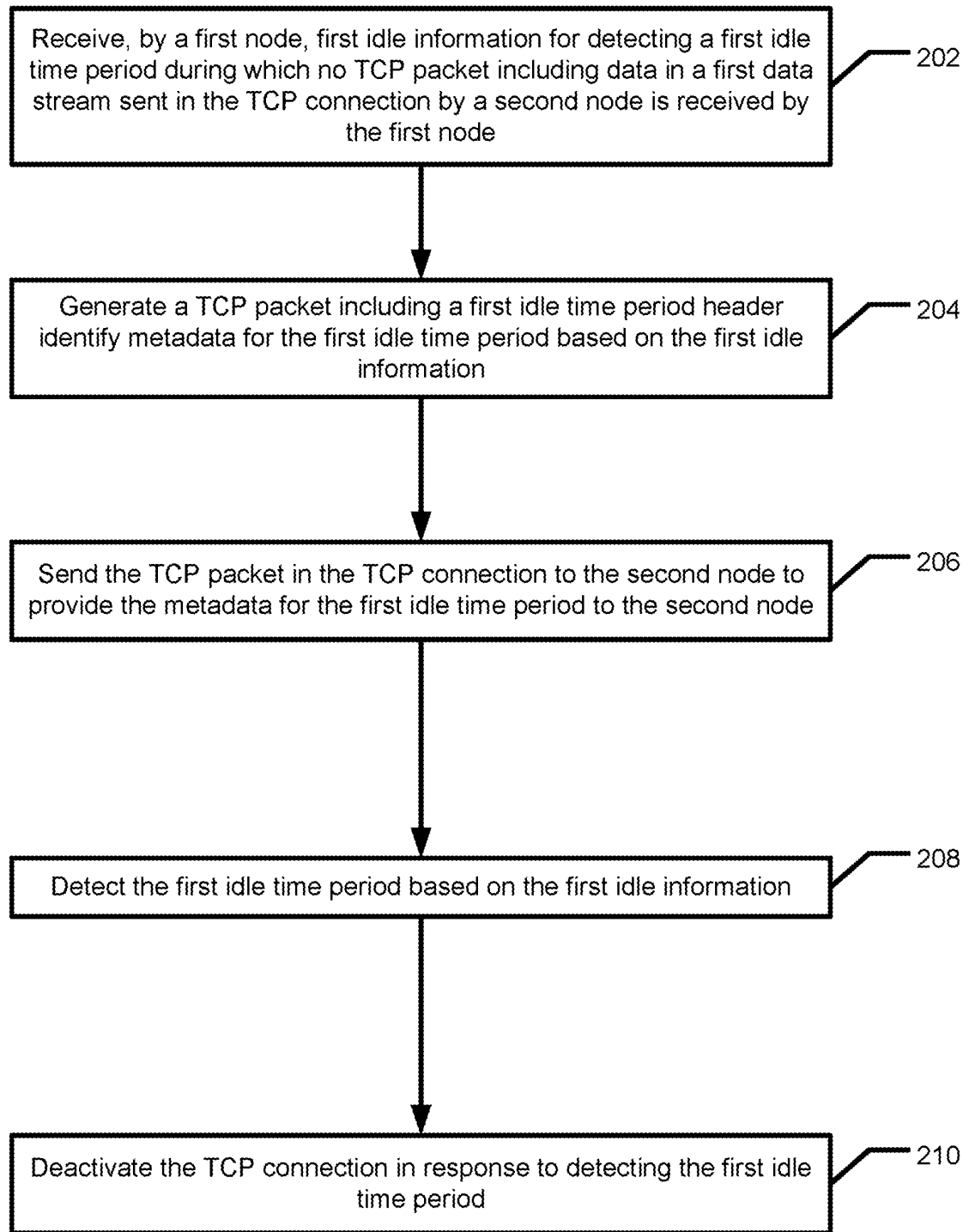


Fig. 2

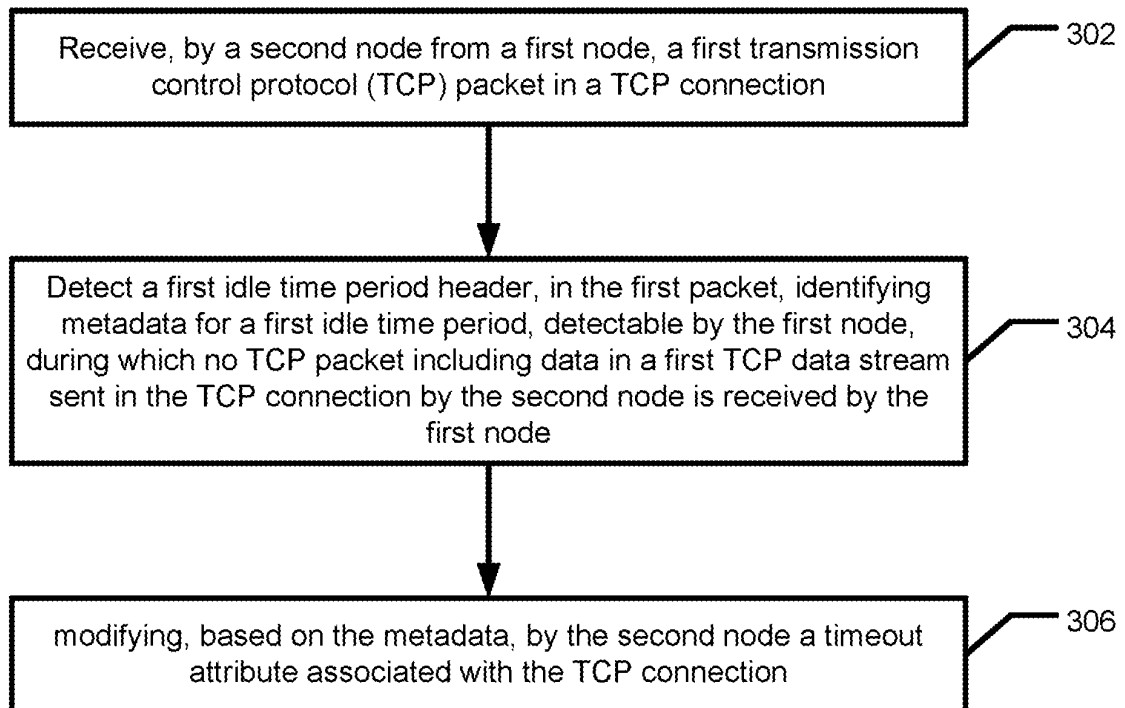


Fig. 3

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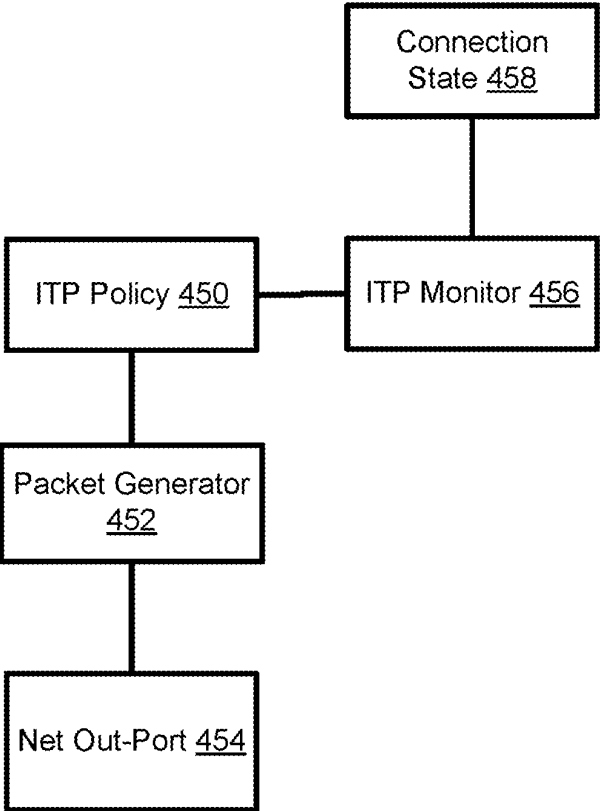


Fig. 4a

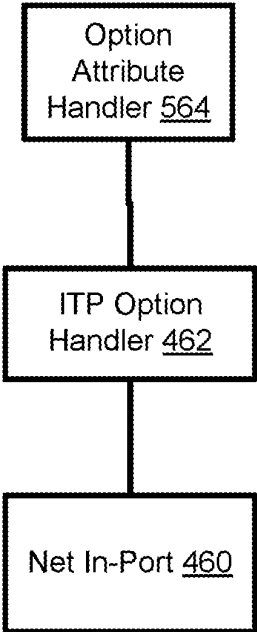


Fig. 4b

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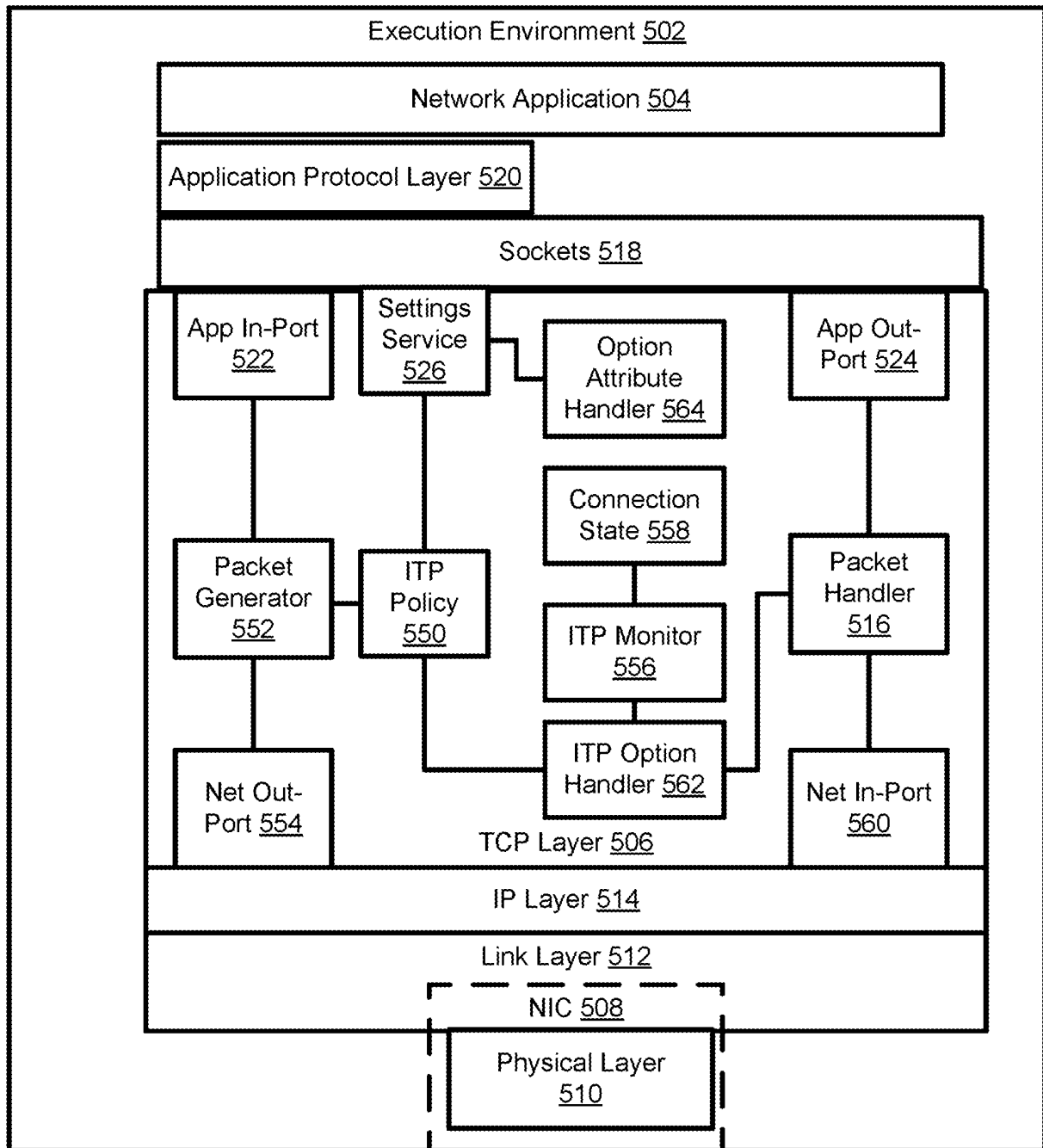


Fig. 5

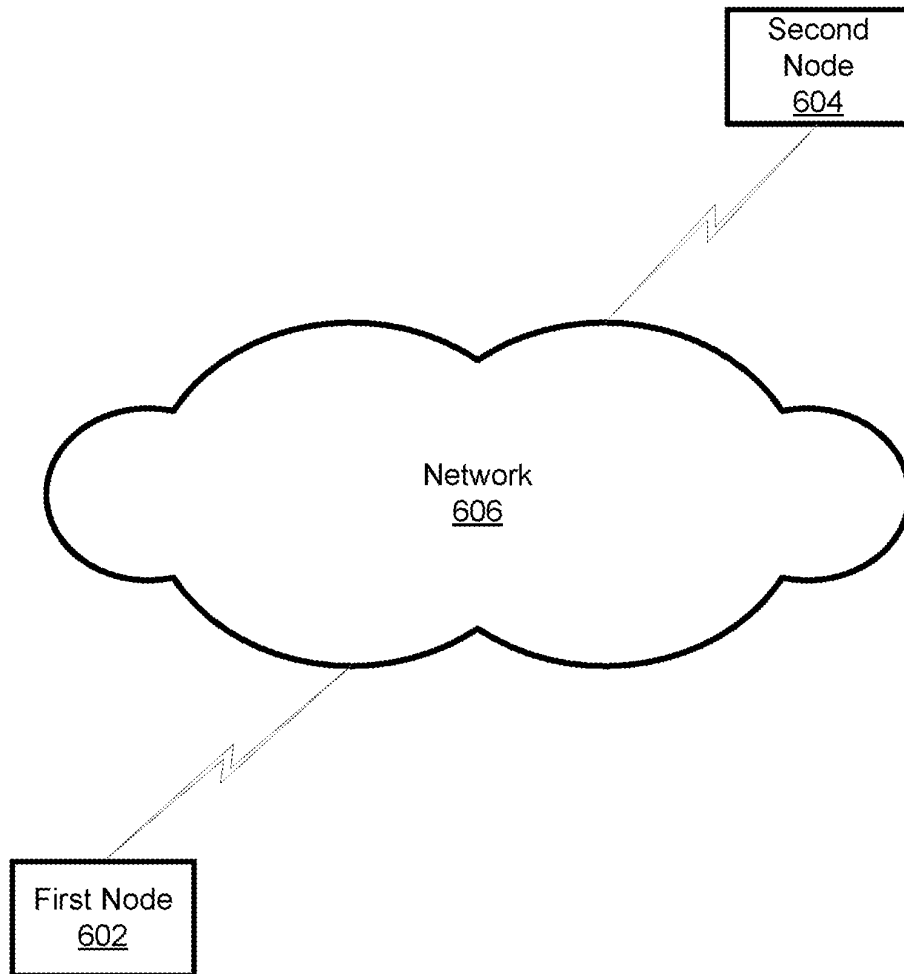


Fig. 6

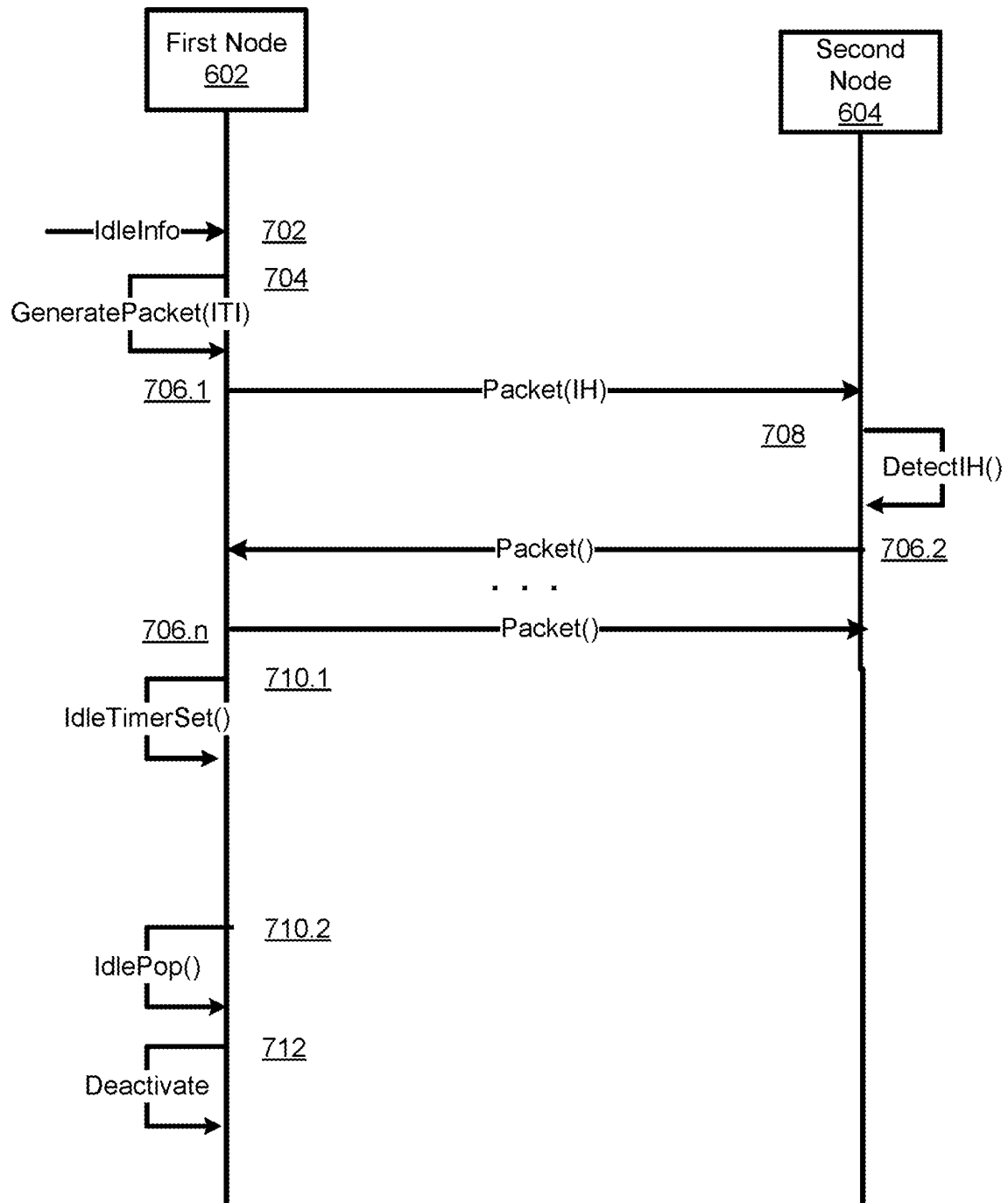
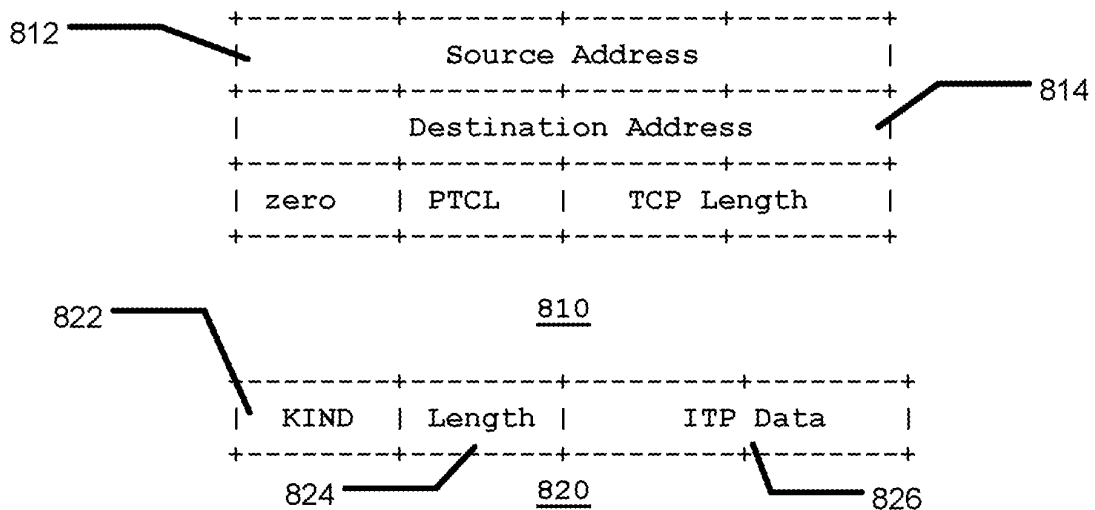
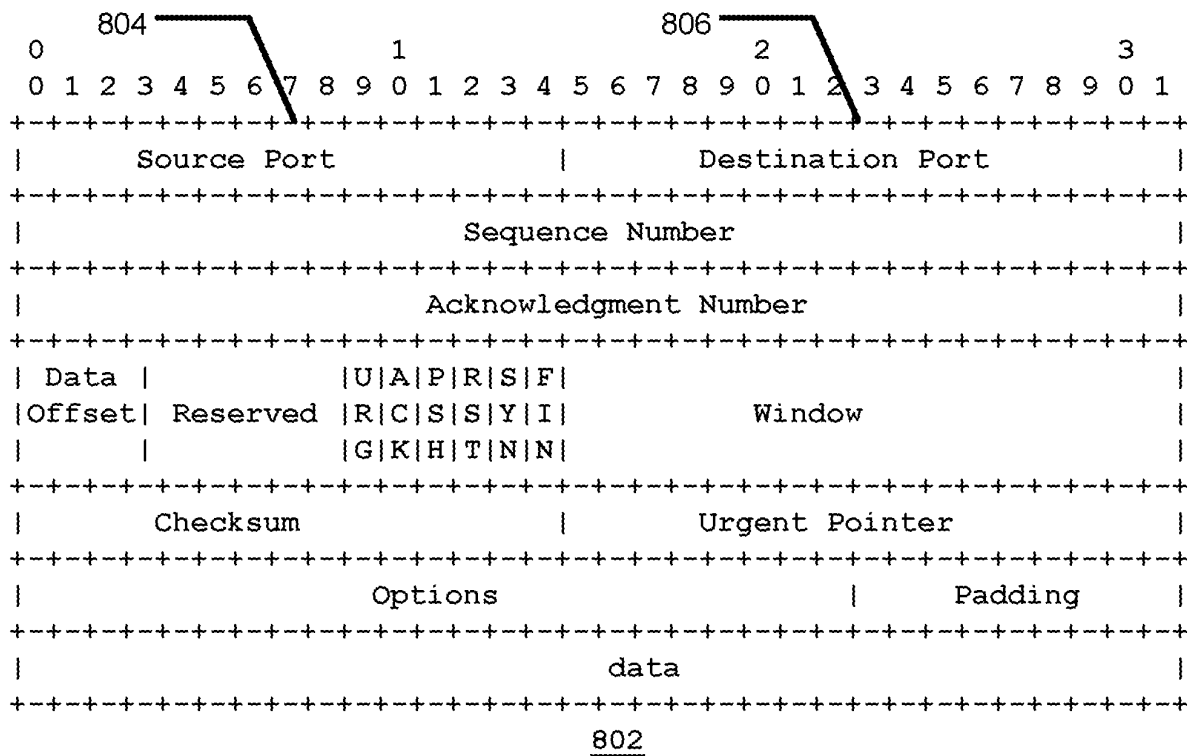


Fig. 7



Figures are adapted from RFC 793

Fig. 8

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	1	6412006	B2	2002-06-25	Naudus	
	2	7404210	B2	2008-07-22	Lin	
	3	7426569	B2	2008-09-16	Dunk	
	4	7684346	B2	2010-03-23	Valli	
	5	7720989	B2	2010-05-18	Dunk	
	6	7729271	B2	2010-06-01	Tsuchiya et al.	
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	1	20050054347	A1	2005-03-10	Kakani	
	2	20050063304	A1	2005-03-24	Sillasto et al.	
	3	20060034179	A1	2006-02-16	Carter et al.	
	4	20090252072	A1	2009-10-08	Lind et al.	
	5	20100057844	A1	2010-03-04	Johnson	
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	1	Allman, M., Paxson, V., Stevens, W., "TCP Congestion Control", RFC 2581, Internet Engineering Task Force, http://tools.ietf.org/rfc/rfc2581.txt , -April 1999	☐
	2	Busatto, Fabio, "TCP Keepalive Overview", TCP Keepalive HOWTO, Section 2, http://tldp.org/HOWTO/html_single/TCP-Keepalive-HOWTO/#overview , accessed January 2010, May 2007	☐
	3	Eggert, L., Gont, F., "TCP User Timeout Option", RFC 5482, Internet Engineering Task Force (IETF), http://tools.ietf.org/html/rfc5482.txt , March 2009,	☐
	4	Koziero, Charles M., TCP Connection Management and Problem Handling, the Connection Reset Function, and TCP "Keepalives", The TCP/IP Guide, p. 3, http://www.tcpipguide.com/free/t_TCPConnectionManagementandProblemHandlingtheConnec-3.htm , accessed February 2010, (c) 2003-2010	☐
	5	Mathis, M., Mahdave, J., Floyd, S., Romanow, A., "TCP Selective Acknowledgement Options", RFC 2018, Internet Engineering Task Force, http://tools.ietf.org/rfc/rfc2018.txt , October 1996	☐
	6	Nagle, John, "Congestion Control in IP/TCP Internetworks", RFC 896, Ford Aerospace and Communications Corporation, http://tools.ietf.org/rfc/rfc896.txt , January 1984	☐
	7	Postel, John(ed.), Editor; "Transmission Control Protocol - DARPA Internet Protocol Specification", RFC 793, USC/ Information Sciences Institute, http://tools.ietf.org/rfc/rfc793.txt , September 1981	☐

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Name/Print	Patrick Caldwell	Registration Number	44580

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1	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2012-06-21	☐
2	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-03-04	☐
3	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-09-27	☐
4	Office Action Summary in U.S. Pat. App. No. 12/714454 dated 2012-02-23	☐
5	Office Action Summary in U.S. Pat. App. No. 13/477,402 dated 2014-09-24	☐
6	Office Action Summary in U.S. Pat. App. No. 15/694,802 dated 2017-11-29	☐

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METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

RELATED APPLICATIONS

[0001] This application is a continuation of, and claims priority to U.S. Patent Application No. 15/915,047 entitled “METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION,” filed on 03-07-2018 which, in turn, is a continuation of, and claims priority to U.S. Patent Application No. 15/694,802, now U.S. Patent No. 9,923,995, entitled “METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION,” filed on 09-03-2017 which, in turn, is a continuation-in-part of, and claims priority to U.S. Patent Application No. 14/667,642, entitled “METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SELECTING A RESOURCE BASED ON A MEASURE OF A PROCESSING COST,” filed on 03-24-2015 which, in turn, is a continuation-in-part of and claims priority to U.S. Patent Application No. 13/477,402, entitled “METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION,” filed 05-22-2012 which is a continuation of and claims priority to U.S. Patent Application No. 12/714,454, now U.S. Patent No. 8,219,606, entitled “METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION,” filed 02-27-2010.

[0002] U.S. Patent Application No. 12/714,454, entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed 02-27-2010 is incorporated herein by reference in its entirety for all purposes.

[0003] This application is related to the following commonly owned U.S. Patent Applications, the entire disclosure of which is incorporated by reference herein in its entirety for all purposes: Application No. 12/714,063 (Docket No 0110) filed on 2010/02/26, entitled "Methods, Systems, and Program Products for Detecting an Idle TCP Connection".

BACKGROUND

[0004] Various implementations of the transmission control protocol (TCP) in network nodes support a number of options that are not negotiated or even communicated between or among any of the nodes. Some of these options are included in the specification of the TCP while others are not. For example, the TCP keep-alive option is supported by a number of implementations of the TCP. It is not, however, part of the TCP specification as described in "Request for Comments" (RFC) document RFC 793 edited by John Postel, titled "Transmission Control Protocol, DARPA Internet Program Internet Protocol Specification" (September 1981), which is incorporated here in its entirety by reference. One, both, or neither node including an endpoint in a TCP connection may support a keep-alive option for the connection. Each node supports or

does not support keep-alive for a TCP connection based on each node's requirements without consideration for the other node in the TCP connection.

[0005] With respect to the keep-alive option, some argue that it is unnecessary and that it can waste network bandwidth. Some of these critics point out that a keep-alive packet can bring down a TCP connection. Further, since nodes including endpoints in a TCP connection do not cooperate in supporting the keep-alive option, the nodes may operate in opposition to one another and/or may waste resources by duplicating function, according to critics of the keep-alive option.

[0006] Proponents of the keep-alive option claim there is a benefit to detecting a dead peer/partner endpoint sooner. A node providing TCP keep-alive can also indirectly detect when a network is so congested that two nodes with endpoints in a TCP connection are effectively disconnected. Proponents argue that keep-alive can keep an inactive TCP connection open. For example, some network nodes such as firewalls are configured to close TCP connections determined to be idle or inactive in order to recover resources. Keep-alive can prevent this. This is good from the perspective of the node sending keep-alive packets, but the keep-alive packets might cause the firewall to waste resources and possibly block or terminate TCP connections with other nodes.

[0007] TCP keep-alive and the debate of its benefits and faults have been around for decades. To date no mechanism to allow two TCP connection endpoints to cooperate in supporting the keep-alive option has been proposed or implemented. The broader issue of enabling cooperation and negotiation between nodes in a TCP connection in

detecting and managing idle, underactive, and/or dead TCP connections remains unaddressed.

[0008] Accordingly, there exists a need for methods, systems, and computer program products for sharing information for detecting an idle TCP connection.

SUMMARY

[0009] The following presents a simplified summary of the disclosure in order to provide a basic understanding to the reader. This summary is not an extensive overview of the disclosure and it does not identify key/critical elements of the invention or delineate the scope of the invention. Its sole purpose is to present some concepts disclosed herein in a simplified form as a prelude to the more detailed description that is presented later.

[0010] A computer-implemented method is provided, comprising: causing access to be provided to a server computer including: a non-transitory memory storing a network application, and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the network application to operate in accordance with a first protocol including a transmission control protocol (TCP); causing a TCP connection to be established with a client computer, by: communicating a segment including at least one first synchronize bit, communicating a first acknowledgement of the segment, and at least one second synchronize bit, and communicating a second acknowledgement; causing first data to be communicated

from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer; causing the server computer to permit second data, from the user of the client computer, to be received at the server computer from the client computer utilizing the TCP connection in accordance with the TCP protocol and the hypertext transfer protocol (HTTP); and causing access to be provided, to the client computer, to code that causes the client computer to operate in accordance with a second protocol that is separate from the TCP, in order to establish a second protocol connection with another server computer, by: receiving a packet, detecting an idle time period parameter field in the packet, identifying metadata in the idle time period parameter field for an idle time period, where, after the idle time period is detected, the second protocol connection is deemed inactive, and creating or modifying, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

[0011] Another computer-implemented method is provided comprising: providing access to a server computer including: a non-transitory memory storing a network application, and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the network application to operate in accordance with a first protocol including a transmission control protocol (TCP); causing a TCP connection to be established with a client computer, by communicating a segment including at least one first synchronize bit; communicating a

first acknowledgement of the segment, and at least one second synchronize bit; and communicating a second acknowledgement; causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer; causing the server computer to permit second data, from the user of the client computer, to be received at the server computer from the client computer utilizing the TCP connection in accordance with the TCP protocol and the hypertext transfer protocol (HTTP); and providing access to code that results in the client computer operating in accordance with a second protocol that is separate from the TCP, in order to establish a second protocol connection with another server computer, by: identifying idle information for detecting an idle time period, after which, the second protocol connection is subject to deactivation, generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information, and sending, from the client computer to the another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection.

[0012] Yet another computer-implemented method is provided comprising: providing access to a server computer including: a non-transitory memory storing instructions, and one or more processors in communication with the non-transitory memory, wherein

the one or more processors execute the instructions such that a network application operates in accordance with a first protocol including a transmission control protocol (TCP), the server computer, when operating in accordance with the first protocol to set up a TCP connection with a client computer, configured to: communicate a segment including at least one first synchronize bit, communicate a first acknowledgement of the segment, and at least one second synchronize bit, and communicate a second acknowledgement; causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer; causing the server computer to permit second data, of the user of the client computer, to be received at the server computer from the client computer utilizing the TCP connection in accordance with the TCP protocol and the hypertext transfer protocol (HTTP); and providing access to code that causes the client computer to operate in accordance with a second protocol that is different from the TCP and that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, in order to setup a second protocol connection with another server computer, by: receiving, by the client computer from the another server computer, a packet, identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via the second protocol connection, and b) causes the second protocol connection to be kept at

least partially alive, and determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

[0013] Still yet another computer-implemented method is provided comprising: providing access to a server computer including: a non-transitory memory storing instructions, and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions such that a network application operates in accordance with a first protocol including a transmission control protocol (TCP) that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, the server computer, when operating in accordance with the first protocol to set up a TCP connection with a client computer, configured to: communicate a segment including at least one first synchronize bit, communicate a first acknowledgement of the segment, and at least one second synchronize bit, and communicate a second acknowledgement; causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer; causing the server computer to permit second data, of the user of the client computer, to be received at the server computer from the client computer utilizing the TCP connection in accordance with the TCP protocol and the hypertext transfer protocol (HTTP); and providing access to code that results in the client computer operating in accordance with a second protocol, that is different from the TCP and operates above the IP layer and below the

HTTP application layer, in order to setup a second protocol connection with another server computer, and to: receive idle information for use in detecting an idle time period during which no signal is communicated that meets each of the following criteria: a) communicated in the second protocol connection, and b) results in the second protocol connection being at least partially kept alive, generate, based on the idle information, a second protocol packet including an idle time period parameter field identifying metadata that is specified in a number of seconds or minutes, and send, from the client computer to another server computer and during the set up of the second protocol connection, the second protocol packet to provide the metadata to the another server computer, for use by the another server computer in determining a timeout attribute associated with the second protocol connection.

[0014] Other methods and systems are also described for sharing information for detecting an idle TCP connection. In one aspect, a method includes receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection. The method further includes detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node. The method still further includes modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection.

[0015] Further, a system for sharing information for detecting an idle TCP connection is described. The system includes an execution environment including an instruction processing unit configured to process an instruction included in at least one of a net in-port component, an idle time period option handler component, and an option attribute handler component. The system includes the net in-port component configured for receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection. The system further includes the idle time period option handler component configured for detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node. The system still further includes the option attribute handler component configured for modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection

[0016] In another aspect, a method for sharing information for detecting an idle TCP connection is described that includes receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. The method further includes generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The method still further includes sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to

the second node. The method also includes detecting the first idle time period based on the first idle information. The method additionally includes deactivating the TCP connection in response to detecting the first idle time period.

[0017] Still further, a system for sharing information for detecting an idle TCP connection is described. The system includes an execution environment including an instruction processing unit configured to process an instruction included in at least one of an idle time period policy component, a packet generator component, a net out-port component, an idle time period monitor component, and a connection state component. The system includes the idle time period policy component configured for receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. The system includes the packet generator component configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The system still further includes the net out-port component configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. The system includes the idle time period monitor component configured for detecting the first idle time period based on the first idle information. The system includes the connection state component configured for deactivating the TCP connection in response to detecting the first idle time period.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] Objects and advantages of the present invention will become apparent to those skilled in the art upon reading this description in conjunction with the accompanying drawings, in which like reference numerals have been used to designate like or analogous elements, and in which:

[0019] Fig. 1 is a block diagram illustrating an exemplary hardware device included in and/or otherwise providing an execution environment in which the subject matter may be implemented;

[0020] Fig. 2 is a flow diagram illustrating a method for sharing information for detecting an idle TCP connection according to an aspect of the subject matter described herein;

[0021] Fig. 3 is a flow diagram illustrating another method for sharing information for detecting an idle TCP connection according to another aspect of the subject matter described herein;

[0022] Fig. 4a and Fig. 4b show a block a diagram illustrating an arrangement of components for sharing information for detecting an idle TCP connection according to a further aspect of the subject matter described herein;

[0023] Fig. 5 is a block diagram illustrating an arrangement of components for sharing information for detecting an idle TCP connection according to still another aspect of the subject matter described herein;

[0024] Fig. 6 is a network diagram illustrating an exemplary system for sharing information for detecting an idle TCP connection according to an aspect of the subject matter described herein;

[0025] Fig. 7 is a message flow diagram illustrating an exemplary data and execution flow for sharing information for detecting an idle TCP connection according to an aspect of the subject matter described herein; and

[0026] Fig. 8 is a diagram illustrating a structure for a packet transmitted via a network according to an aspect of the subject matter described herein.

DETAILED DESCRIPTION

[0027] An exemplary device included in an execution environment that may be configured according to the subject matter is illustrated in Fig. 1. An execution environment includes an arrangement of hardware and, optionally, software that may be further configured to include an arrangement of components for performing a method of the subject matter described herein.

[0028] An execution environment includes and/or is otherwise provided by one or more devices. An execution environment may include a virtual execution environment

including software components operating in a host execution environment. Exemplary devices included in or otherwise providing suitable execution environments for configuring according to the subject matter include personal computers, notebook computers, tablet computers, servers, hand-held and other mobile devices, multiprocessor devices, distributed devices, consumer electronic devices, and/or network-enabled devices. Those skilled in the art will understand that the components illustrated in Fig. 1 are exemplary and may vary by particular execution environment.

[0029] Fig. 1 illustrates hardware device **100** included in execution environment **102** which includes instruction-processing unit (IPU) **104**, such as one or more microprocessors; physical IPU memory **106** including storage locations identified by addresses in a physical memory address space of IPU **104**; persistent secondary storage **108**, such as one or more hard drives and/or flash storage media; input device adapter **110**, such as key or keypad hardware, keyboard adapter, and/or mouse adapter; output device adapter **112**, such as a display or audio adapter for presenting information to a user; a network interface, illustrated by network interface adapter **114**, for communicating via a network such as a LAN and/or WAN; and a communication mechanism that couples elements **104-114**, illustrated as bus **116**. Elements **104-114** may be operatively coupled by various means. Bus **116** may comprise any type of bus architecture, including a memory bus, a peripheral bus, a local bus, and/or a switching fabric.

[0030] IPU **104** is an instruction execution machine, apparatus, or device. Exemplary IPU's include one or more microprocessors, digital signal processors (DSP), graphics processing units (GPU), application-specific integrated circuits (ASIC), and/or field programmable gate arrays (FPGA).

[0031] IPU **104** may access machine code instructions and data via one or more memory address spaces in addition to the physical memory address space. A memory address space includes addresses identifying locations in an IPU memory. IPU **104** may have more than one IPU memory. Thus, IPU **104** may have more than one memory address space. IPU **104** may access a location in an IPU memory by processing an address identifying the location. The processed address may be in an operand of a machine code instruction and/or may be identified in a register or other portion of IPU **104**.

[0032] Fig. 1 illustrates virtual IPU memory **118** spanning at least part of physical IPU memory **106** and at least part of persistent secondary storage **108**. Virtual memory addresses in a memory address space may be mapped to physical memory addresses identifying locations in physical IPU memory **106**. An address space for identifying locations in a virtual IPU memory is referred to as a virtual memory address space; its addresses are referred to as virtual memory addresses; and its IPU memory is known as a virtual IPU memory or virtual memory. The term IPU memory may refer to physical IPU memory **106** and/or virtual IPU memory **118** depending on the context in which the term is used.

[0033] Various types of memory technologies may be included in physical IPU memory **106**. Exemplary memory technologies include static random access memory (SRAM) and/or dynamic RAM (DRAM) including variants such as dual data rate synchronous DRAM (DDR SDRAM), error correcting code synchronous DRAM (ECC SDRAM), and/or RAMBUS DRAM (RDRAM). Physical IPU memory **106** may include volatile memory as illustrated in the previous sentence and/or may include nonvolatile memory such as nonvolatile flash RAM (NVRAM) and/or read-only memory (ROM).

[0034] Persistent secondary storage **108** may include one or more flash memory storage devices, one or more hard disk drives, one or more magnetic disk drives, and/or one or more optical disk drives. Persistent secondary storage may include removable media. The drives and their associated computer-readable storage media provide volatile and/or nonvolatile storage for computer readable instructions, data structures, program components, and other data for execution environment **102**.

[0035] Execution environment **102** may include software components stored in persistent secondary storage **108**, in remote storage accessible via a network, and/or in an IPU memory. Fig. 1 illustrates execution environment **102** including operating system **120**, one or more applications **122**, other program code and/or data components illustrated by other libraries and subsystems **124**.

[0036] Execution environment **102** may receive user-provided information via one or more input devices illustrated by input device **128**. Input device **128** provides input information to other components in execution environment **102** via input device adapter

110. Execution environment **102** may include an input device adapter for a keyboard, a touch screen, a microphone, a joystick, a television receiver, a video camera, a still camera, a document scanner, a fax, a phone, a modem, a network adapter, and/or a pointing device, to name a few exemplary input devices.

[0037] Input device **128** included in execution environment **102** may be included in device **100** as Fig. 1 illustrates or may be external (not shown) to device **100**. Execution environment **102** may include one or more internal and/or external input devices.

External input devices may be connected to device **100** via corresponding communication interfaces such as a serial port, a parallel port, and/or a universal serial bus (USB) port. Input device adapter **110** receives input and provides a representation to bus **116** to be received by IPU **104**, physical IPU memory **106**, and/or other components included in execution environment **102**.

[0038] Output device **130** in Fig. 1 exemplifies one or more output devices that may be included in and/or may be external to and operatively coupled to device **100**. For example, output device **130** is illustrated connected to bus **116** via output device adapter **112**. Output device **130** may be a display device. Exemplary display devices include liquid crystal displays (LCDs), light emitting diode (LED) displays, and projectors. Output device **130** presents output of execution environment **102** to one or more users. In some embodiments, an output device is a device such as a phone, a joystick, and/or a touch screen. In addition to various types of display devices, exemplary output devices include printers, speakers, tactile output devices such as

motion producing devices, and other output devices producing sensory information detectable by a user.

[0039] A device included in or otherwise providing an execution environment may operate in a networked environment communicating with one or more devices (not shown) via one or more network interfaces. The terms “communication interface” and “network interface” are used interchangeably. Fig. 1 illustrates network interface adapter **114** as a network interface included in execution environment **102** to operatively couple device **100** to a network. The terms “network node” and “node” in this document both refer to a device having a network interface operatively coupled to a network.

[0040] Exemplary network interfaces include wireless network adapters and wired network adapters. Exemplary wireless networks include a BLUETOOTH network, a wireless 802.11 network, and/or a wireless telephony network (e.g., a cellular, PCS, CDMA, and/or GSM network). Exemplary wired networks include various types of LANs, wide area networks (WANs), and personal area networks (PANs). Exemplary network adapters for wired networks include Ethernet adapters, Token-ring adapters, FDDI adapters, asynchronous transfer mode (ATM) adapters, and modems of various types. Exemplary networks also include intranets and internets such as the Internet.

[0041] Fig. 2 is a flow diagram illustrating a first method for sharing information for detecting an idle TCP connection according to an exemplary aspect of the subject matter described herein. Fig. 3 is a flow diagram illustrating a second method for sharing information for detecting an idle TCP connection according to an exemplary

aspect of the subject matter described herein. Fig. 4a is a block diagram illustrating a system for sharing information for detecting an idle TCP connection according to the first method in Fig. 2. Fig. 4b is a block diagram illustrating a system for sharing information for detecting an idle TCP connection according to the second method in Fig. 3. It is expected that many, if not most, systems configured to perform one of the methods illustrated in Fig. 2 and Fig. 3 will also be configured to perform the other method.

[0042] A system for sharing information for detecting an idle TCP connection according to the method illustrated in Fig. 2 includes an execution environment, such as execution environment **102** in Fig. 1, including an instruction processing unit, such as IPU **104**, configured to process an instruction included in at least one of an idle time period policy component **450**, a packet generator component **452**, and a net out-port component **454**, a idle time period monitor component **456**, and a connection state component **458** illustrated in Fig. 4a.

[0043] A system for sharing information for detecting an idle TCP connection performing the method illustrated in Fig. 3 includes an execution environment, such as execution environment **102** in Fig. 1, including an instruction processing unit, such as IPU **104**, configured to process an instruction included in at least one of a net in-port component **460**, an idle time period option handler component **462**, an option attribute handler component **464** illustrated in Fig. 4b.

[0044] Components illustrated in Fig. 4a may be adapted for performing the method illustrated in Fig. 2 in a number of execution environments. Components illustrated in Fig. 4b may be adapted for performing the method illustrated in Fig. 3 in a number of execution environments. Fig. 5 is a block diagram illustrating adaptations and/or analogs of the components of Fig. 4a and Fig. 4b in exemplary execution environment **502** including or otherwise provided by one or more nodes. The method depicted in Fig. 2 and the method depicted in Fig. 3 may be carried out by some or all of the exemplary components and/or their analogs.

[0045] The components illustrated in Fig. 4 and Fig. 5 may be included in or otherwise may be combined with some or all of the components of Fig. 1 to create a variety of arrangements of components according to the subject matter described herein.

[0046] Fig. 6 illustrates first node **602** and second node **604** as exemplary devices included in and/or otherwise adapted for providing a suitable execution environment, such as execution environment **502** illustrated in Fig. 5, for an adaptation of the arrangement of components in Fig. 4a and an adaptation of the arrangement of components in Fig. 4b. As illustrated in Fig. 6, first node **602** and second node **604** are operatively coupled to network **606** via respective network interfaces enabling first node **602** and second node **604** to communicate. Fig. 7 is a message flow diagram illustrating an exemplary exchange of messages within and between first node **602** and second node **604** according to the subject matter described herein.

[0047] As stated, the various adaptations of the arrangements of components in Fig. 4a and in Fig. 4b described herein are not exhaustive.

[0048] In Fig. 5, execution environment **502** illustrates a network application **504** operating in a node configured to communicate with one or more other nodes via the TCP supported by TCP layer component **506**. For example, first node **602** may be included in and/or provide execution environment **502**. Network application **504** may be a first application configured to communicate with an application operating in second node **604** via network **606**. Second node **604** may be included in and/or provide another instance of execution environment **502**. The operation of both first node **602** and second node **604** are described with respect to execution environment **502**. For ease of illustration, both first node **602** and second node **604** are configured with adaptations of the arrangement in Fig. 4a and the arrangement in Fig. 4b. As such, the description of components and corresponding operations with respect to execution environment **502** in Fig. 5 is applicable to both first node **602** and second node **604** in Fig. 6.

[0049] In Fig. 5, network interface card (NIC) **508** is an exemplification of a network interface illustrated in Fig. 1 by network interface adapter **114**. NIC **508** includes a physical layer component **510** operatively coupling execution environment **502** to one or more physical media for carrying communication signals. The media may be wired, such as an Ethernet LAN operating over CAT 6 cabling, or may be wireless such as an 802.11n LAN. Other exemplary physical layer protocols and corresponding media are identified above.

[0050] NIC **508** may also include a portion of link layer component **512**. Link layer component **512** may provide for communication between two nodes in a point-to-point communication and/or two nodes in a local area network (LAN). Exemplary link layers and, their protocols have been described above including FDDI, ATM, and Ethernet. A portion of link layer component **512** is external to NIC **508**. The external portion may be realized as a device driver for NIC **508**.

[0051] Link layer component **512** may receive data formatted as one or more internet protocol (IP) packets from internet protocol (IP) layer component **514**. Link layer component **512** packages data from IP layer component **514** according to the particular link layer protocol supported. Analogously, link layer component **512** interprets data, received as signals transmitted by the physical media operatively coupled to physical layer component **510**, according to a particular link layer protocol supported. Link layer component **512** may strip off link layer specific data and transfer the payload of link layer transmissions to IP layer component **514**.

[0052] IP layer component **514** illustrated in Fig. 5 is configured to communicate with one or more remote nodes over a LAN and/or a network of networks such as an intranet or the Internet. IP layer component **514** may receive data formatted as TCP packets from TCP layer component **506**. IP layer component **514** packages data from TCP layer component **506** into IP packets for transmission across a network. The network may be and/or may include an internet. Analogously, IP layer component **514** interprets data, received from link layer component **512** as IP protocol data and detects IP packets in

the received data. IP layer component **514** may strip off IP layer specific data and transfer the payload of one or more IP packets to TCP layer component **506**.

[0053] In Fig. 5, IP layer component **514** is operatively coupled to TCP layer component **506**. TCP layer component **506** is configured to provide a TCP connection over network **606** for sending and/or receiving packets included in the TCP connection between two nodes exemplified by first node **602** and second node **604**.

[0054] In a TCP connection including first node **602** and second node **604**, first node **602** may include a first TCP connection endpoint and second node **604** may include a second TCP connection endpoint. The first and second TCP connection endpoints identify the TCP connection. The TCP connection may have other identifiers, in addition to the included endpoints.

[0055] Components of execution environment **502**, in an aspect, may interoperate with TCP layer component **506** directly. In another aspect, one or more components, such as network application **504**, may interoperate with TCP layer component **506** indirectly. Network application **504** may exchange data with TCP layer component **506** via sockets component **518** and/or an analog of sockets component **518**. Alternatively or additionally, network application **504** may communicate with a remote node via an application protocol layer illustrated by application protocol layer component **520**. Many application protocols currently exist and new application protocols will be developed. Exemplary application layer protocols include hypertext transfer protocol (HTTP), file transfer protocol (FTP), and extensible messaging and presence protocol (XMPP).

[0056] TCP layer component **506** in Fig. 5 may receive data from any of various sources for transmitting in corresponding TCP connections to various corresponding identified TCP connection endpoints in one or more network nodes. Fig. 5 illustrates application in-port (app in-port) component **522** providing an interface component for receiving data to transmit in a TCP connection. Fig. 5 illustrates TCP layer component **506** includes packet generator component **552** configured to package data received by application in-port component **522** for transmitting in one or more TCP packets. The one or more TCP packets are provided to IP layer component **514** via net out-port component **554** exemplifying an output interface component.

[0057] Analogously, TCP layer component **506** interprets data received from IP layer component **514** via net in-port component **560**. The data is interpreted as TCP data and TCP packets are detected in the received data by net in-port component **560** and/or packet handler component **516**. Fig. 5 illustrates TCP layer component **506** includes packet handler component **516** to strip off and/or otherwise process TCP layer specific data. Packet handler component **516** interoperates with application out-port (app out-port) component **524** to transfer data in the TCP packet included in a TCP data stream to sockets component **518**, application protocol layer **520**, network application **504**, and/or other components associated with the local endpoint of the TCP connection. Detailed information on the operation of TCP is included in RFC 793.

[0058] With reference to the method illustrated in Fig. 2, block **202** illustrates the method includes receiving, by a first node, first idle information for detecting a first idle

time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. For example, as illustrated in Fig. 4a, idle time period policy component **450** is configured for receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node.

[0059] Fig. 5 illustrates idle time period (ITP) policy component **550** as an adaptation of and/or analog of ITP policy component **450** in Fig. 4a. One or more idle time period policy components **550** operate in execution environment **502**.

[0060] Message **702** in Fig. 7 illustrates a communication including and/or otherwise identifying idle information received by ITP policy component **550**. Message **702** may take various forms in various aspects. Exemplary forms for message **702** include a function/method invocation, a message passed via a message queue, data transmitted via a pipe, a message received via a network, and/or a communication via a shared location in IPU memory and/or secondary storage.

[0061] Idle information may be received from a configuration storage location for TCP layer component **506** in an IPU memory and/or in secondary storage **108**. The

configured idle information may be maintained and/or otherwise managed by settings service component **526** configured to maintain and/or manage various options or settings for TCP layer component **506** and/or one or more TCP connections.

[0062] In an aspect, network application **504** provides idle information to ITP policy component **550** via settings service component **526** interoperating with sockets component **518**. Sockets component **518** and/or TCP layer component **506** may support TCP options applicable globally for some or all TCP connections and/or may support TCP options on a per connection basis. Per connection TCP options may override global TCP options if global options are also supported. In another aspect, idle information may be received from and/or otherwise received based on information via application protocol layer **520**, via sockets component **518**, and/or directly from network application **504**.

[0063] Application protocol layer **520** may provide idle information to ITP policy component **550** via settings service component **526** and, optionally, via sockets component **518**. Idle information provided by application protocol layer **520** may be based on data received from network application **504**, based on a particular configuration of application protocol layer **520**, and/or received from a user and/or administrator of one or both of network application **504** and application protocol layer **520**.

[0064] In an aspect, the idle information received may be based on a previous ITP header identified in a packet in the TCP connection received by first node **602** from

second node **604**. The previous packet may be received by net in-port component **560**. The previous ITP header may be detected by ITP option handler component **562** interoperating with packet handler component **516**. Idle information may be identified and/or otherwise determined by ITP option handler component **562**. ITP policy component **550** may interoperate with ITP option handler component **562** to receive the idle information.

[0065] Idle information received, determined, and/or otherwise identified may include and/or identify a duration of time for detecting an idle time period. The duration may be specified according to various measures of time including seconds, minutes, hours, and/or days.

[0066] Alternatively or additionally, idle information may include and/or identify a generator for determining a duration of time for detecting an idle time period. An exemplary generator may include a formula, an expression, a function, a policy, and/or other mechanism for generating and/or otherwise identifying a duration of time.

[0067] In an aspect, one or more algorithms for generating a duration of time for detecting an idle time period may be associated with identifiers. The algorithm identifiers may be standardized within a group of nodes including first node **602** and second node **604**. The received idle information may include and/or reference an algorithm identifier. First node **602** and second node **604** may each maintain an association between one or more of the algorithm identifiers and a duration generator such as a function and/or a class configured to perform the identified algorithm.

[0068] A duration generator may determine the duration of time for detecting an idle time period based on one or more attributes accessible to one or both of first node **602** and second node **604**. Exemplary attributes include a measure of network latency, a measure of network congestion, an indication of the availability of a particular resource, a user specified attribute, a security attribute, an energy usage attribute, a user attribute such as role of the user, and/or a measure of bandwidth supported by NIC **508** and/or a physical network medium operatively coupled to NIC **508**.

[0069] Alternatively or additionally, idle information may include a parameter such as one or more of the attributes identified in the previous paragraph for use in a duration generator for determining a duration of time for measuring and/or otherwise detecting an idle time period.

[0070] A TCP connection may be identified by its endpoints. First node **602** and/or second node **604** may include an endpoint of the TCP connection. Alternatively or additionally, first node **602** and/or second node **604** may include a proxy endpoint representing an endpoint in a TCP connection. Nodes, that provide a network address translation (NAT) service, are exemplary nodes including proxy endpoints.

[0071] A node including a TCP connection endpoint is referred to as a host. Hosts are typically user devices and/or servers that typically operate at the edge of a network. While endpoints of most TCP connections are not typically included in network nodes for relaying, routing, and/or otherwise forwarding TCP packet data within a network such as routing nodes and switching nodes. Such network nodes may include one or

more connection endpoints for one or more respective TCP connections. It should be understood that the term “host” refers to a role played by a device in a network. First node **602** and/or second node **604** may play the role of a host in a TCP connection and/or may be proxy nodes.

[0072] A node is referred to as being in or included in a TCP connection when the node includes an endpoint of the connection and/or includes a proxy for a connection endpoint, referred to as a proxy endpoint. A proxy endpoint and an endpoint in a TCP connection may be in the same node or in different nodes.

[0073] In Fig. 5, connection state component **558** may maintain state information for one or more TCP connection endpoints and/or proxy endpoints of corresponding TCP connections included in an instance of an execution environment, such as execution environment **502**, included in and/or provided by first node **602** or second node **604**.

[0074] First node **602** and/or second node **604** may play a role of a proxy node for a node including a TCP connection endpoint. First node **602** and/or second node **604** may include a proxy endpoint representing an endpoint in a TCP connection. A proxy node forwards TCP packet data, sent by a host including a TCP connection endpoint, to another host including a corresponding connection endpoint represented by a proxy endpoint included in the proxy node and vice versa. Exemplary proxy nodes in addition to including routing and/or switching capabilities may include a bridge, a hub, a repeater, a gateway, and a firewall.

[0075] In an aspect, a TCP keep-alive option, a TCP user timeout, a retransmission timeout, an acknowledgment timeout, and/or another timeout associated with a TCP connection may be modified based on the first idle information.

[0076] For example, in Fig. 5, ITP policy component **550** operating in first node **602** may modify an attribute of a TCP keep-alive option provided by one or more keep-alive components that may include settings service component **526**. Modifying a keep-alive attribute may include creating the attribute, deleting the attribute, and/or modifying the attribute. ITP policy component **550** may interoperate with settings service component **526**, connection state component **558**, and/or a keep-alive option handler component (not shown) to detect the existence and state of one or more keep-alive attributes in determining whether a keep-alive option is active and/or in identifying its current state.

[0077] In response to identifying the idle information, ITP policy component **550** may activate, disable, and/or modify the state of the keep-alive option via interoperation with one or more of settings service component **526**, connection state component **558**, and/or a keep-alive option handler. Thus, in response to identifying the idle information, ITP policy component **550** may prevent and/or alter the time a keep-alive packet is sent to second node **604** from first node **602**.

[0078] Alternatively or additionally, ITP policy component **550** operating in first node **602** may modify an attribute associated with an acknowledgment timeout configured for TCP layer component **506**. Modifying an acknowledgment timeout attribute may include creating the attribute, deleting the attribute, and/or modifying the attribute. ITP policy

component **550** may interoperate with settings service component **526**, connection state component **558**, and/or an acknowledgment option handler component (not shown) to detect the existence and state of one or more packet acknowledgment attributes. In response to identifying the idle information, ITP policy component **550** may modify the state of the packet acknowledgment option. Thus, in response to identifying the idle information, ITP policy component **550** may prevent and/or alter the time an acknowledgment is sent in a packet in a TCP connection.

[0079] Returning to Fig. 2, block **204** illustrates the method further includes generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. For example, as illustrated in Fig. 4a, packet generator component **452** is configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information.

[0080] Fig. 5 illustrates packet generator component **552** as an adaptation of and/or analog of packet generator component **452** in Fig. 4a. One or more packet generator components **552** operate in execution environment **502**.

[0081] Packet generator component **552** in Fig. 5 may receive idle information and/or information based on the received idle information from ITP policy component **550**.

Whether and when packet generator component **552** receives information for including an idle time period (ITP) header in a TCP packet may depend on a current state of the associated TCP connection. In Fig. 5, ITP policy component **550** may interoperate with connection state component **558** to determine whether and when to provide information to packet generator component **552** for including an ITP header in a TCP packet.

[0082] In an aspect, an ITP header may be included in a packet exchanged during setup of TCP connection. RFC 793 describes a “three-way handshake” for establishing a TCP connection. The synchronization requires each side to send it's own initial sequence number and to receive a confirmation of it in acknowledgment from the other side. Each side must also receive the other side's initial sequence number and send a confirming acknowledgment.

[0083] 1) A --> B SYN my sequence number is X

[0084] 2) A <-- B ACK your sequence number is X

[0085] 3) A <-- B SYN my sequence number is Y

[0086] 4) A --> B ACK your sequence number is Y

[0087] Because steps 2 and 3 can be combined in a single message this is called the three way (or three message) handshake.

[0088] Other message exchanges may be used in setting up a TCP connection as those skilled in the art will understand. Such other exchanges are not currently

supported by the TCP as described in RFC 793. The specified “three-way handshake” and other patterns of message exchange for setting up a TCP connection include packets that are considered to be in the TCP connection for purposes of this disclosure. Including an ITP header may be restricted to packets exchanged in connection setup, excluded from packets exchanged during connection establishment, or allowed in one or more packets exchanged during connection establishments and in packets exchanged after connection setup.

[0089] In an aspect, when connection state component **558** and/or ITP policy component **550** determine an ITP header should be included in a TCP packet based on received idle information, packet generator component **552** may include the ITP header in a next TCP packet generated in response to data received via application in-port component **522** for sending to first node **602**. In another aspect, packet generator component **552** may send the ITP header in a TCP packet in the TCP connection with no data included in the TCP data stream sent by first node **602** to second node **604**. Such a packet is referred to as an empty Packet generator component **554** may send the empty TCP packet when TCP layer component **506** has no for data from an application in second node **604** to send in the TCP data stream to first node **602**.

[0090] Packet generator component **552** may generate a packet according to the TCP specifications and may include a header identified as an ITP header in accordance with specifications for including TCP option headers in a TCP packet. See RFC 793 for more details. Fig. 8 illustrates a format or structure for a TCP packet **802** as described in RFC

793. Each “+” character in Fig. 8, indicates a bit-boundary. TCP packet **802** specifies a location and format for including a source port **804** portion including an identifier for an endpoint of the TCP connection for a sending node and a destination port **806** including an identifier for a corresponding endpoint of the TCP connection in a receiving node. IP packet **810** illustrates a format for an IP packet header for an IP packet including TCP packet data. Source address **812** specifies a location and format in an IP header for including a network address identifying a network interface of the sending node, and destination address **814** identifying a network interface for the receiving node. A network address and a port number identify a connection endpoint in a network. Two endpoints identify a TCP connection.

[0091] Fig. 8 also illustrates a format for an exemplary ITP header **820**. A KIND location is specified for including an identifier indicating that the option is an idle time period (ITP) option in an ITP header. Identifiers for option headers are currently under the control of the Internet Assigned Numbers Authority (IANA). Length field **824** identifies a length of an ITP header. An ITP data field **826** is specified for including ITP header information for detecting an idle time period as described herein

[0092] Those skilled in the art will recognize given this disclosure that an ITP header may have other suitable formats and may be included in a TCP packet in structures and locations other than those specified for TCP options in RFC 793. An equivalent or analog of an ITP header may be included in a footer of a protocol packet in an extension and/or variant of the current TCP.

[0093] ITP data field **826** in Fig. 8 may include and/or otherwise identify metadata for the first idle time period. For example, an ITP data field in a packet may include and/or otherwise identify one or more of a duration of time for detecting an idle time period, a duration generator for determining a duration of time for detecting an idle time period, and a parameter for use in a duration generator for determining a duration of time for measuring and detecting an idle time period.

[0094] Message **704** in Fig. 7 illustrates an invocation and/or other access to packet generator component **552** for generating a TCP packet including an ITP header based on received idle information.

[0095] Returning to Fig. 2, block **206** illustrates the method further includes sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. Accordingly, a system for sharing information for detecting an idle TCP connection further includes means for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. For example, as illustrated in Fig. 4a, the net out-port component **454** is configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node.

[0096] Fig. 5 illustrates net out-port component **554** as an adaptation of and/or analog of net out-port component **454** in Fig. 4a. One or more net out-port components **554** operate in execution environment **502**. Net out-port component **554** is illustrated

operatively coupled to packet generator component **552**. Net out-port component **554** may receive TCP packet data from packet generator component **552** and interoperate with IP layer component **514** to send the TCP packet in one or more IP packets via network **606** to second node **604**. Message **706.1** in Fig. 7 illustrates a TCP packet including an ITP header sent by first node **602** and received by second node **604**.

[0097] In one aspect, an ITP header may be sent to make sending one or more TCP keep-alive packets by a partner node in the connection unnecessary. A receiver of a packet including an ITP header, such as second node **604**, may keep a TCP connection alive based on information in the ITP header.

[0098] In another aspect, first node **602** may set a keep-alive timeout attribute based on a duration of the first idle time period identified in the first idle information and/or in the metadata provided to second node **604**. For example, first node **602** may monitor a time period during which no non-empty packets are sent or received in the TCP connection. A keep-alive option handler and/or keep-alive component (not shown) operating in first node **602** may set a keep-alive timer according to the timeout attribute, with a duration that will result in the keep-alive timer expiring before an idle time period can occur. In response to detecting a keep-alive timeout, which may be indicated by the expiration of the keep-alive timer, the keep-alive option handler and/or keep-alive policy component may provide information to packet generator component **552** to generate a TCP keep-alive packet. The packet generator component **552** may provide the generated packet to net out-port component **554** for sending the TCP keep-alive packet

to second node **604** to determine whether the TCP connection is active and/or to keep the TCP connection active.

[0099] In another aspect, ITP policy component **550** operating in first node **602** may set a timer, analogous to the keep-alive timer described in the previous paragraph that expires before an time period can occur. In response the timer expiring, ITP policy component **550** may provide idle information to packet generator component **552** to generate a TCP packet including a second ITP header. Content of the second ITP header may be based on the first idle information received, data received from second node **604**, information received from a network application that may be from a user, and/or on any information accessible to TCP layer component **506** in execution environment **502** in first node **602**. The TCP packet generated by packet generator component **552** is provided to IP layer component **514** via net out-port component **554** to send to second node **604** in the TCP connection. Along with sending the message, first node **602** may reset and/or otherwise restart detection of the first idle time period. Thus, a second ITP header may be sent in a second TCP packet by first node **602** to second node **602** along with restarting detection of the first idle time period. Alternatively, first node **602** may reset and initiate detection of an idle time period with a different duration than the previous idle time period, based on the idle information for generating the second ITP header.

[00100] Returning to Fig. 2, block **208** illustrates the method further includes detecting the first idle time period based on the first idle information. Accordingly, a system for

sharing information for detecting an idle TCP connection further includes means for detecting the first idle time period based on the first idle information. For example, as illustrated in Fig. 4a, the idle time period monitor component **456** is configured for idle time period monitor.

[00101] Fig. 5 illustrates idle time period monitor component **556** as an adaptation of and/or analog of idle time period monitor component **456** in Fig. 4a. One or more idle time period monitor components **556** operate in execution environment **502**.

[00102] In an aspect, in response to receiving the first idle information, ITP policy component **550** may store a value representing a duration of time in a configuration storage location. Alternatively, or additionally, ITP policy component **550** may invoke a duration generator to determine a duration of time for detecting the idle time period. The duration generator may be preconfigured for the TCP connection and/or may be identified based on the idle information received. As described, the invoked generator may be invoked with a parameter included in and/or otherwise identified based on the received idle information.

[00103] ITP policy component **550** may interoperate with ITP monitor component **556** to identify the duration for detecting the idle time period. ITP monitor component **556**, in various aspects, may receive information including and/or otherwise identifying a duration of time, a duration generator, and/or a parameter for a duration generator. ITP monitor component **556** may initiate and/or restart a process for detecting an idle time

period. In an aspect, ITP monitor component **556** detects and/or otherwise identifies a beginning of a potential idle time period based on one or more specified events.

[00104] In an aspect, detecting the first idle time period by ITP monitor component **556** may include detecting a time period in the idle time period during which first node **602** has received acknowledgment for all data sent via the TCP connection in the TCP data stream by first node **602** to second node **604**. Further, the first idle time period may include a time period during which first node **602** has sent one or more TCP packets to second node **604** to acknowledge all data received in a TCP data stream in the TCP connection from second node **604** to first node **602**. Detecting the first idle time period by ITP monitor component **556** may include detecting that all received data has been acknowledged and/or that all sent data has been acknowledged.

[00105] In an aspect, ITP policy component **550** may include a policy with a rule indicating that an idle time period cannot begin while a TCP packet sent by first node **602** remains unacknowledged by second node **604**. ITP policy component **550** may prevent ITP monitor component **556** from initiating detection of an idle time period while unacknowledged data exists. In a further aspect, a time duration may be associated and/or included in the policy identifying a limit to a period of waiting to receive acknowledgment of TCP packet data sent by first node **602**. In one aspect, waiting for lack of an acknowledgment for an empty packet does not delay detection of an idle time period, while in another aspect ITP monitor component **556** will not initiate detection while an empty packet remains unacknowledged.

[00106] In an aspect, idle information, received by a node may be included in and/or otherwise based on a previous idle time period header identified in a previous TCP packet received in the TCP connection by the node from a remote node prior to sending an ITP header based on the idle information by the node. For example, the first idle information received by ITP policy component **550** in first node **602** may be based on an idle time period header included a TCP packet in the TCP connection sent by second node **604** and received by first node **602** prior to sending the first TCP packet by first node **602**. The exchange of ITP headers may include a negotiation between first node **602** and second node **604**.

[00107] A duration of time may be identified based on the idle information received by ITP policy component in first node **602**. A timer may be set according to the identified duration. Detecting the first idle time period may include and/or otherwise may be based on detecting the timer expiration. ITP monitor component **556** may set a timer configured to expire in a time duration identified based on the first idle information received by ITP policy component **550**. The identified duration may be longer, shorter, or equal to a duration of the idle time period. ITP monitor component **556** may use multiple timers. ITP monitor component **556** may recalculate and/or otherwise generate a new idle duration based on the idle information at one or more times during detection of the first idle time period. That is, a duration of an idle time period may be static and/or may be dynamic, changing based on attribute information accessible during the detection process and/or based on one or more duration generators.

[00108] Message **710.1** illustrates a call and/or other communication between ITP monitor component **556** and a timer component in first node **602** to set a timer included in detecting an idle time period. Prior to the setting the timer, first node **602** and second node **602** may be active in exchanging TCP packets as illustrated by messages including message **706.2** through message **706.n**. Those skilled in the art will recognize that detection of an idle time period may not include explicitly and/or directly using a timer. ITP monitor component **556** may monitor other events as a proxy or indirect mechanism for initiating detection and detecting an idle time period.

[00109] ITP monitor component **556** may detect one or more events configured to indicate that an idle time period has occurred. For example, expiration of a timer or multiple associated timers may be interpreted by ITP monitor component **556** as marking an occurrence of the first idle time period. Message **710.2** illustrates ITP monitor component **556** receiving information identifying expiration of a timer for detecting the first idle time period.

[00110] In a further aspect, in response to detecting the expiration of a timer set as described above, a TCP keep-alive packet may be sent by first node **602** to determine whether the TCP connection is action and/or to keep the TCP connection active. When the keep-alive packet is sent, an acknowledgment timer may be set. If a timeout of the acknowledgment timer is detected indicating no TCP packet has been received acknowledging the keep-alive packet, the first idle time period may be detected in response to and/or otherwise based on the timeout of the acknowledgment timer.

[00111] In Fig. 5, ITP policy component **550** in first node **602** may provide a duration identified based on the received idle information to a keep-alive monitor component (not shown). The keep-alive monitor component may configure a keep-alive timer to expire based on the identified duration. In response to detecting expiration of the keep-alive timer, ITP monitor component **556** may invoke packet generator component **552** to generate a TCP keep-alive packet. First node **602** may send the TCP packet to second node **604**. The TCP keep-alive packet may be sent to prevent detection of an idle time period by second node **604** and/or may otherwise be sent to detect by first node **602** whether the TCP connection is active.

[00112] First node **602** may set an acknowledgment timer associated with sending the packet. If the acknowledgment timer expires before a TCP packet is received from second node **602** acknowledging the packet sent, ITP monitor component **556** may detect the idle time period in response to and/or otherwise based on expiration of the acknowledgment timer.

[0100] Receiving a packet from second node **604** included in the TCP connection is an event that, in various aspects, may directly and/or indirectly indicate the beginning of a potential idle time period. A potential idle time period may begin at some specified point during and/or after processing a received TCP packet. In one aspect, an empty TCP packet may be received while a potential idle time period is being monitored. That is, a beginning of the potential idle time period has been detected. In response to receiving the empty TCP packet, monitoring of the current potential time period may be aborted.

Further, in response to receiving the empty TCP packet, a beginning of a next potential idle time period may be detected.

[0101] In Fig. 5, ITP policy component **550** and ITP monitor component **556** may operate to reset and/or initiate detection of an idle time period in response to receiving an empty TCP packet. First node **602** may receive an empty packet. In response, ITP monitor component **556** may receive an event and/or other indication to reset detection of an idle time period. Resetting the detecting process may be based on whether or not a received empty TCP packet matches a specified condition. ITP option handler component **562** may be configured to determine whether a received empty TCP packet matches the condition. If ITP option handler component **562** determines the empty packet matches the condition, ITP monitor component **556** may be instructed to reset and/or restart detection of the first idle time period including detecting the beginning of a next potential time period.

[0102] The condition may match received TCP packets including ITP headers and/or other TCP option headers. A condition may match a port number and/or other field in TCP packet. A condition may further be based on a network address in an IP header including the TCP packet.

[0103] In a further aspect, first node **602** may receive via network **606** from second node **604** a TCP packet in the TCP connection including an second ITP header. Message **706.2** in Fig. 7 illustrates the TCP packet sent by second node **604**. ITP option handler component **562** may identify the second ITP header received from second node

604. The identified second ITP header may be for detecting by first node **602** an idle time period, during which no TCP packet in the TCP connection is received, by the first node **602** that includes data in the first TCP data stream from second node **604**. The first idle time period may be detected by ITP monitor component **556** in first node **602** based on the second ITP header and based on the received idle information. The second ITP header received in the TCP packet from second node **604** may be based on the first ITP header in the TCP packet sent in the TCP connection by first node **602** to second node **604**.

[0104] In some aspects, the first node and second node **604** may continue to exchange ITP headers. Information in the exchanged ITP headers may be based on ITP headers received in the TCP connection and/or on data accessible locally to one or both of the nodes. In some aspects, the exchange may be a negotiation while in other the exchange may simply be informational.

[0105] Returning to Fig. 2, block **210** illustrates the method further includes deactivating the TCP connection in response to detecting the first idle time period. Accordingly, a system for sharing information for detecting an idle TCP connection further includes means for deactivating the TCP connection in response to detecting the first idle time period. For example, as illustrated in Fig. 4a, the connection state component **458** is configured for deactivating the TCP connection in response to detecting the first idle time period.

[0106] Fig. 5 illustrates connection state component **558** as an adaptation of and/or analog of connection state component **458** in Fig. 4a. One or more connection state components **558** operate in execution environment **502**.

[0107] When ITP monitor component **556** in first node **602** detects an idle time period, ITP monitor component **556** may provide an indication to connection state component **558**. The indication may indicate that the idle time period for the TCP connection has been detected and/or otherwise may instruct connection state component **558** and/or other components in TCP layer component **506** to deactivate the TCP connection. Message **712** in Fig. 7 illustrates a communication to deactivate the TCP connection communicated in response to detecting the idle time period.

[0108] Deactivating the TCP connection may include closing the TCP connection. A TCP connection may be closed using a three-way handshake packet exchange described in RFC 793. Deactivating the TCP connection may include sending a TCP packet by the detecting node to reset the TCP connection. According to RFC 793, first node **602** may send a TCP packet including a reset (RST) bit set to “1” to indicate a connection reset. Deactivating the TCP connection may include, alternatively or additionally, releasing a resource allocated for maintaining and/or activating the TCP connection.

[0109] With respect to the method illustrated in Fig. 3, block **302** illustrates the method includes receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection. Accordingly, a system for sharing

information for detecting an idle TCP connection includes means for receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection. For example, as illustrated in Fig. 4b, the net in-port component **460** is configured for receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection.

[0110] Fig. 5 illustrates net in-port component **560** as an adaptation of and/or analog of net in-port component **460** in Fig. 4b. One or more net in-port components **560** operate in execution environment **502**.

[0111] As described above, net in-port component **560** in Fig. 5 may operate in an instance of execution environment **502** and/or an analog included in and/or including second node **604**. The TCP packet, illustrated by message **706.1** in Fig. 7 and described above, may be received by net in-port component **560** in second node **604**. The TCP packet may include data in a second TCP data stream sent by first node **602** to second node **604** to deliver to a user of TCP layer component **506** in second node **604** such as network application **504**. Alternatively, the TCP packet may be an empty TCP packet. The received TCP packet may be a packet included in setting up the TCP connection as described above.

[0112] Returning to Fig. 3, block **304** illustrates the method further includes detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first

node. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node. For example, as illustrated in Fig. 4b, idle time period option handler component **462** is configured for detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node.

[0113] Fig. 5 illustrates idle time period option handler component **562** as an adaptation of and/or analog of idle time period option handler component **462** in Fig. 4b. One or more idle time period option handler components **562** operate in execution environment **502**.

[0114] In Fig. 5, ITP option handler component **562** is operatively coupled to packet handler component **516**. The TCP packet, including the ITP header sent by first node **602**, may be received, and identified as a TCP packet by net in-port component **560** operating in second node **604**. As illustrated in Fig. 5, net in-port component **560** and/or an analog of net in-port component **560** may provide and/or otherwise identify the received packet to packet handler component **516**. Packet handler component **516** may detect various portions of the TCP packet according to the TPC packet **802** structure as

illustrated in Fig. 8. Alternatively, packet handler component **516** may provide some or all of the packet to various components in TCP layer component **506** to identify portions of the packet according to the TCP specification and/or according to a particular implementation.

[0115] The ITP header sent by first node **602** may be received by and/or otherwise identified by ITP option handler component **562**. Message **708** in Fig. 7 exemplifies activation of ITP option handler component **562** for detecting the ITP header in the TCP packet received from first node **602** by second node **604**.

[0116] In various aspects, ITP option handler component **562** operating in second node **604** may detect and/or otherwise determine a duration of time for associated with detection of the idle time period by first node **602**, a duration generator, and/or a parameter for a duration generator. The first idle time period header may identify metadata including and/or identifying for detection of the first idle time period by first node **602** a duration of time, a generator for determining a duration of time, and/or an input for determining a duration of time.

[0117] Returning to Fig. 3, block **306** illustrates the method yet further includes modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection. For example, as illustrated in Fig. 4b, the option attribute handler component **464** is configured for

modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection.

[0118] Fig. 5 illustrates option attribute handler component **564** as an adaptation of and/or analog of option attribute handler component **464** in Fig. 4b. One or more option attribute handler components **564** operate in execution environment **502**.

[0119] In an aspect, ITP option handler component **562** may one or more attribute option handler components **564** to modify one or more corresponding attributes of a keep-alive option, a TCP user timeout, a retransmission timeout, an acknowledgment timeout, and another timeout associated with the TCP connection, in response to identifying the ITP header. The modifying may be based on the content of the ITP header.

[0120] For example, ITP option handler component **562** in second node **604** may interoperate with a keep-alive attribute option handler component **564** directly and/or indirectly via settings service component **526**, connection state component **558**, and/or a keep-alive policy component (not shown) to detect the existence and state of one or more keep-alive attributes in determining whether the keep-alive option is active and/or the state of the keep-alive option.

[0121] In response to identifying the idle time period header, ITP option handler component **562** may activate, disable, and/or modify the state of the keep-alive option via interoperation with the keep-alive attribute option handler. Thus, in response to

identifying the idle information, attribute option handler component **564** may prevent and/or alter the time a keep-alive packet is sent by second node **604** to first node **602**.

[0122] Alternatively or additionally, an attribute option handler component **564** may modify an attribute associated with a packet acknowledgment option provided by TCP layer component **506** in first node **602**. Modifying a packet acknowledgment attribute may include creating the attribute, deleting the attribute, and/or modifying the attribute. Attribute option handler component **564** may interoperate with settings service component **526**, connection state component **558**, and/or an acknowledgment policy component (not shown) to detect the existence and state of one or more packet acknowledgment attributes. In response to identifying the idle information, attribute option handler component **564** may modify the state of the packet acknowledgment option. Thus, in response to identifying the idle information, attribute option handler component **564** may prevent and/or alter the time an acknowledgment is sent in a packet data from second node **604** to first node **602** in the TCP connection.

[0123] As described herein an ITP header for detecting an idle time period for a TCP connection may serve a number of purposes. A first node in a TCP connection may via an ITP header inform and/or otherwise identify to a second node in the connection one or more durations for detecting an idle time period by one or both nodes. Given multiple purposes, one or more types of ITP headers may be supported and/or an ITP header may be structured to support one or more of the described services. An exchange of ITP headers may be informational and/or may be included in negotiation between two

nodes included in a TCP connection. When used in a negotiation, an ITP header may be included in a negotiation protocol that has an identifiable end during a portion of the existence of a TCP connection or may be included in a negotiation that may remain ongoing throughout the existence of a TCP connection. Those skilled in the art will recognize the list of services in this paragraph is not exhaustive.

[0124] It should be understood that the various components illustrated in the various block diagrams represent logical components that are configured to perform the functionality described herein and may be implemented in software, hardware, or a combination of the two. Moreover, some or all of these logical components may be combined, some may be omitted altogether, and additional components may be added while still achieving the functionality described herein. Thus, the subject matter described herein may be embodied in many different variations, and all such variations are contemplated to be within the scope of what is claimed.

[0125] To facilitate an understanding of the subject matter described above, many aspects are described in terms of sequences of actions that may be performed by elements of a computer system. For example, it will be recognized that the various actions may be performed by specialized circuits or circuitry (e.g., discrete logic gates interconnected to perform a specialized function), by program instructions being executed by one or more instruction processing units, or by a combination of both. The description herein of any sequence of actions is not intended to imply that the specific order described for performing that sequence must be followed.

[0126] Moreover, the methods described herein may be embodied in executable instructions stored in a computer readable medium for use by or in connection with an instruction execution machine, system, apparatus, or device, such as a computer-based or processor-containing machine, system, apparatus, or device. As used herein, a "computer readable medium" may include one or more of any suitable media for storing the executable instructions of a computer program in one or more of an electronic, magnetic, optical, electromagnetic, and infrared form, such that the instruction execution machine, system, apparatus, or device may read (or fetch) the instructions from the computer readable medium and execute the instructions for carrying out the described methods. A non-exhaustive list of conventional exemplary computer readable media includes a portable computer diskette; a random access memory (RAM); a read only memory (ROM); an erasable programmable read only memory (EPROM or Flash memory); optical storage devices, including a portable compact disc (CD), a portable digital video disc (DVD), a high definition DVD (HD-DVD.TM.), a Blu-ray.TM. disc; and the like.

[0127] Thus, the subject matter described herein may be embodied in many different forms, and all such forms are contemplated to be within the scope of what is claimed. It will be understood that various details may be changed without departing from the scope of the claimed subject matter. Furthermore, the foregoing description is for the purpose of illustration only, and not for the purpose of limitation, as the scope of

protection sought is defined by the claims as set forth hereinafter together with any equivalents thereof entitled to.

[0128] All methods described herein may be performed in any order unless otherwise indicated herein explicitly or by context. The use of the terms "a" and "an" and "the" and similar referents in the context of the foregoing description and in the context of the following claims are to be construed to include the singular and the plural, unless otherwise indicated herein explicitly or clearly contradicted by context. The foregoing description is not to be interpreted as indicating any non-claimed element is essential to the practice of the subject matter as claimed.

I CLAIM:

1. An apparatus comprising:
a non-transitory memory storing instructions; and
one or more processors in communication with the non-transitory memory,
wherein the one or more processors execute the instructions for:

receiving, by a second node from a first node, a transmission control
protocol (TCP)-variant packet in advance of a TCP-variant connection being
established;

detecting an idle time period parameter field in the TCP-variant packet;

identifying metadata in the idle time period parameter field for an idle time
period that is detectable by the first node and, during which, no packet is
communicated in the TCP-variant connection to keep the TCP-variant connection
active; and

modifying, by the second node and based on the metadata, a timeout
attribute associated with the TCP-variant connection.
2. The apparatus of claim 1 wherein the apparatus is configured such that the
timeout attribute is an attribute of a keep-alive.
3. The apparatus of claim 1 wherein at least one of:

the second node includes a server, the server being configured to: in response to the receiving, send, by the second node to the first node, another TCP-variant packet in advance of the TCP-variant connection being established, the another TCP-variant packet including other metadata for the idle time period; or

the second node includes a client, the client being configured such that the receiving is performed subsequent to sending, by the second node to the first node, another TCP-variant packet in advance of the TCP-variant connection being established including other metadata for the idle time period.

4. The apparatus of claim 3 wherein, regardless as to whether the apparatus is the server or the client, the metadata is the same as the other metadata.

5. The apparatus of claim 3 wherein, regardless as to whether the apparatus is the server or the client, the metadata is different from the other metadata.

6. The apparatus of claim 1 wherein the apparatus is configured such that the timeout attribute is specified in a number of seconds or minutes.

7. The apparatus of claim 1 wherein the apparatus is configured such that the timeout attribute is used to keep the TCP-variant connection open when inactive, and to prevent one or more other nodes from closing the TCP-variant connection when inactive.

8. The apparatus of claim 1 wherein the apparatus is configured such that the metadata is used as input of an algorithm for determining a duration of time specified by the timeout attribute.
9. The apparatus of claim 8 wherein the apparatus is configured such that the algorithm is determined based on at least one particular attribute.
10. The apparatus of claim 1 wherein the apparatus is configured such that the modification of the timeout attribute results from a negotiation between the first node and the second node via a negotiation protocol of a TCP-variant protocol.
11. The apparatus of claim 1 wherein the one or more processors execute the instructions for:
- detecting the idle time period based on the timeout attribute; and
 - in response to detecting the idle time period, deactivating the TCP-variant connection by releasing a resource allocated for the TCP-variant connection by one of the first and second nodes without signaling another one of the first and second nodes that is related to the detection of the idle time period.
12. The apparatus of claim 1 wherein the apparatus is configured such that at least one of the detecting or the identifying is performed at a TCP-variant layer other than a

TCP layer, where the TCP-variant layer is above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer.

13. The apparatus of claim 1 wherein the one or more processors execute a network application that is configured to perform a 3-way TCP handshake for establishing a TCP connection that is different than the TCP-variant connection, and wherein the network application is configured to establish the TCP-variant connection instead of the TCP connection in order to permit negotiation, between the first node and the second node, of the timeout attribute, where the timeout attribute is not available when establishing the TCP connection, but is available when establishing the TCP-variant connection so that the TCP-variant connection is capable of being at least partially closed when inactive based on the timeout attribute.

14. The apparatus of claim 1 wherein the apparatus is configured such that the TCP-variant packet and the metadata included therewith are received by the second node from the first node, without any prior signaling from the second node to the first node.

15. An apparatus comprising:
a non-transitory memory storing a network application; and
one or more processors in communication with the non-transitory memory,
wherein the one or more processors execute the network application such that the network application is configured to operate in accordance with a non-transmission

control protocol (TCP) protocol that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, the apparatus, when operating in accordance with the non-TCP protocol, configured to:

- receive, by a second node from a first node, a non-TCP packet during a setup of a non-TCP connection;

- identify metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the non-TCP packet, for an idle time period that is detectable by the first node, where, as a result of a detection of the idle time period, the non-TCP connection is subject to deactivation; and

- determine, based on the metadata, a timeout attribute associated with the non-TCP connection;

wherein the apparatus, when operating in accordance with the TCP protocol, is configured to perform a three-way TCP handshake for establishing a TCP connection that is different than the non-TCP connection.

16. The apparatus of claim 15 wherein the apparatus is configured such that:

- the non-TCP packet and the idle time period parameter field included therewith are operable for being received by the second node from the first node, without any prior signaling from the second node to the first node;

- the determination of the timeout attribute results from a negotiation between the first node and the second node; and

the metadata includes a first value and the timeout attribute is determined to include a second value that is different than the first value of the metadata.

17. The apparatus of claim 15 wherein the apparatus is configured for:
 - detecting the idle time period based on the timeout attribute; and
 - deactivating the non-TCP connection by communicating a particular packet between the first node and the second node, in response to detecting the idle time period.
18. An apparatus comprising:
 - a non-transitory memory storing a network application; and
 - one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the network application such that the network application is configured to operate in accordance with a non-transmission control protocol (TCP) protocol that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, the apparatus, when operating in accordance with the non-TCP protocol, configured to:
 - receive idle information for use in detecting an idle time period that results in a non-TCP connection being subject to deactivation;
 - generate, based on the idle information, a non-TCP packet including an idle time period parameter field identifying metadata that is specified in a number of seconds or minutes; and

send, from a first node to a second node and for establishing the non-TCP connection, the non-TCP packet to provide the metadata to the second node, for use by the second node in determining a timeout attribute associated with the non-TCP connection;

wherein the apparatus, when operating in accordance with the TCP protocol, is configured to perform a three-way TCP handshake for establishing a TCP connection that is separate from the non-TCP connection.

19. The apparatus of claim 18 wherein the apparatus is configured such that:
the determination of the timeout attribute results from a negotiation between the first node and the second node;

during the idle time period, no non-TCP packet including data is communicated in the non-TCP connection;

wherein the apparatus is further configured for:

detecting the idle time period based on the idle information; and

in response to detecting the idle time period, deactivating the non-TCP connection by at least partially closing the TCP-variant connection by one of the first and second nodes without communication between the second node and the first node that is related to the detection of the idle time period.

20. The apparatus of claim 19 wherein at least one of:
the apparatus is at least one component of the first node;

the communication includes only receiving;

the communication includes only sending;

the communication includes receiving and sending;

the non-TCP protocol includes a variant to the TCP;

the non-TCP packet is sent directly from the first node to the second node;

the non-TCP packet is sent from the first node to the second node via at least one other node;

the idle time period parameter field is part of a data portion in the non-TCP packet;

the idle time period parameter field is part of a header of the non-TCP packet;

the idle information is received based on a previous header;

the timeout attribute is capable being the same as the metadata;

the timeout attribute is capable being different from the metadata;

the idle time period is specified in a number of seconds;

the idle time period is specified in a number of minutes;

the timeout attribute specifies a duration;

the non-TCP packet is informational;

the TCP protocol operates directly above the IP layer;

the TCP protocol operates directly below the HTTP application layer;

the non-TCP protocol operates directly above the IP layer;

the non-TCP protocol operates directly below the HTTP application layer;

the determination of the timeout attribute includes at least one of modifying, creating, or deleting the timeout attribute;

the network application provides the idle information to a ITP policy component via a settings service component interoperating with a sockets component;

during the idle time period, a non-TCP packet including data is received by the first node where the non-TCP packet including data is sent by another node; or

during the idle time period, a non-TCP packet including data is received by the first node where the non-TCP packet including data is sent by the second node in the TCP connection.

ABSTRACT

A computer-implemented method is provided, comprising causing access to be provided, to a client computer, to code that causes the client computer to operate in accordance with a protocol that is separate from TCP, in order to establish a protocol connection with another server computer, by: receiving a packet, detecting an idle time period parameter field in the packet, identifying metadata in the idle time period parameter field for an idle time period, where, after the idle time period is detected, the second protocol connection is deemed inactive, and creating or modifying, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		
First Named Inventor/Applicant Name:		Robert Paul Morris		
Filer:		Patrick Edgar Caldwell		
Attorney Docket Number:		PMOR0120H		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
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 (\$)				785

Electronic Acknowledgement Receipt

EFS ID:	33233893
Application Number:	16040522
International Application Number:	
Confirmation Number:	8426
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120H
Receipt Date:	19-JUL-2018
Filing Date:	
Time Stamp:	22:48:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 785
RAM confirmation Number	072018INTEFSW22491100
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File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	PMOR0120H_ADS_vF_19-Jul-2018.pdf	87403	no	9
			bf57647fc72426d4f70d945a513820caa5b92749		
Warnings:					
Information:					
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2	Power of Attorney	PMOR_POA_vF_19-Jul-2018.pdf	158530	no	1
			18000b2b2ed03b4f89f1d9f8d19d492a7727acc4		
Warnings:					
Information:					
3	Oath or Declaration filed	PMOR0120_Declaration_vF_19-Jul-2018.PDF	150646	no	2
			b478bda089f473365224cf9162bff589800b21a1		
Warnings:					
Information:					
4	Drawings-only black and white line drawings	PMOR0120_Drawings_vF_19-Jul-2018.pdf	453623	no	8
			66a837a380b32d0afc9d29ef74e2d14e162d9753		
Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Form (SB08)	PMOR0120_IDSa_vF_19-Jul-2018.pdf	46105	no	5
			5b9f257cad0893ba9593c55730e924bd29e2e5a2		
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6	Information Disclosure Statement (IDS) Form (SB08)	PMOR0120_IDSb_vF_19-Jul-2018.pdf	38590	no	4
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7		PMOR0120H_Application_vF_1 9-Jul-2018.pdf	221152 479cfaabb755c54b0b3244dbc185ec0e4c63c77a	yes	63
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	53	
	Claims		54	62	
	Abstract		63	63	
Warnings:					
Information:					
8	Fee Worksheet (SB06)	fee-info.pdf	35103 6e39c72f6249900173c9010becf75272f7d10d59	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1191152		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PMOR0120H
		Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		
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.)
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Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Robert	Paul	Morris	
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service				
City	Raleigh	State/Province	NC	Country of Residence US
Mailing Address of Inventor:				
Address 1	712 Latta Street			
Address 2				
City	Raleigh	State/Province	NC	
Postal Code	27607	Country	US	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	92045
Email Address	pcaldwell@thecaldwellfirm.com Add Email Remove Email

Application Information:

Title of the Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		
Attorney Docket Number	PMOR0120H	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PMOR0120H
		Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		

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	92045		

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	15915047	2018-03-07

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PMOR0120H
		Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		

Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15915047	Continuation of	15694802	2017-09-03	9923995	2018-03-20
Prior Application Status		Abandoned		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
15694802	Continuation in part of	14667642	2015-03-24		
Prior Application Status		Abandoned		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
14667642	Continuation in part of	13477402	2012-05-22		
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13477402	Continuation of	12714454	2010-02-27	8219606	2012-07-10
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

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.			

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PMOR0120H
		Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		

☐	This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PMOR0120H
		Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		

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	PMOR0120H
		Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		

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			
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	
☐ 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	SITTING MAN, LLC		
Mailing Address Information For Applicant:			
Address 1	712 Latta Street		
Address 2			
City	Raleigh	State/Province	NC
Country	US	Postal Code	27607
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

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	PMOR0120H
		Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		

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.				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country ⁱ		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				

Signature:

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	/Patrick Caldwell/			Date (YYYY-MM-DD)	2018-07-19
First Name	Patrick	Last Name	Caldwell	Registration Number	44580
Additional Signature may be generated within this form by selecting the Add button.					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PMOR0120H
		Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent 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.